50PCD0006

Comprehensive Nutrient Management Plan

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Comprehensive Nutrient Management Plan

The Comprehensive Nutrient Management Plan (CNMP) is an important part of the conservation management system (CMS) for your Animal Feeding Operation (AFO). This CNMP documents the planning decisions and operation and maintenance for the animal feeding operation. It includes background information and provides guidance, reference information and Web-based sites where up-to-date information can be obtained. Refer to the Producer Activity document for information about day-to-day management activities and recordkeeping. Both this document and the Producer Activity document shall remain in the possession of the producer/landowner.

Farm contact information: Sparkmann Farms
c/o Johnny Sparkman
1086 Eaton Rd
Sparta, TN 38583
931-657-6455

Latitude/Longitude: 35°52'58.84"N 85°31'45.38"W

Plan Period: Nov 2010 - Oct 2015

Conservation Planner

As a Conservation Planner, I certify that I have reviewed both the *Comprehensive Nutrient Management Plan* and *Producer Nutrient Management Activities* documents for technical adequacy and that the elements of the documents are technically compatible, reasonable and can be implemented.

Signature: _____ Date: _____
Name:
Title: Certification Credentials:

Owner/Operator

As the owner/operator of this CNMP, I, as the decision maker, have been involved in the planning process and agree that the items/practices listed in each element of the CNMP are needed. I understand that I am responsible for keeping all the necessary records associated with the implementation of this CNMP. It is my intention to implement/accomplish this CNMP in a timely manner as described in the plan.

Signature: _____ Date: _____
Name:

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Section 2. Manure and Wastewater Handling and Storage

Signature: _____ Date: _____
Name:
Title: Certification Credentials:

Sections 4. Land Treatment

Signature: _____ Date: _____
Name:
Title: Certification Credentials:

Section 6. Nutrient Management

The Nutrient Management component of this plan meets the Tennessee Nutrient Management 590 and Waste Utilization 633 Conservation Practice Standards.

Signature: _____ Date: _____
Name:
Title: Certification Credentials:

:

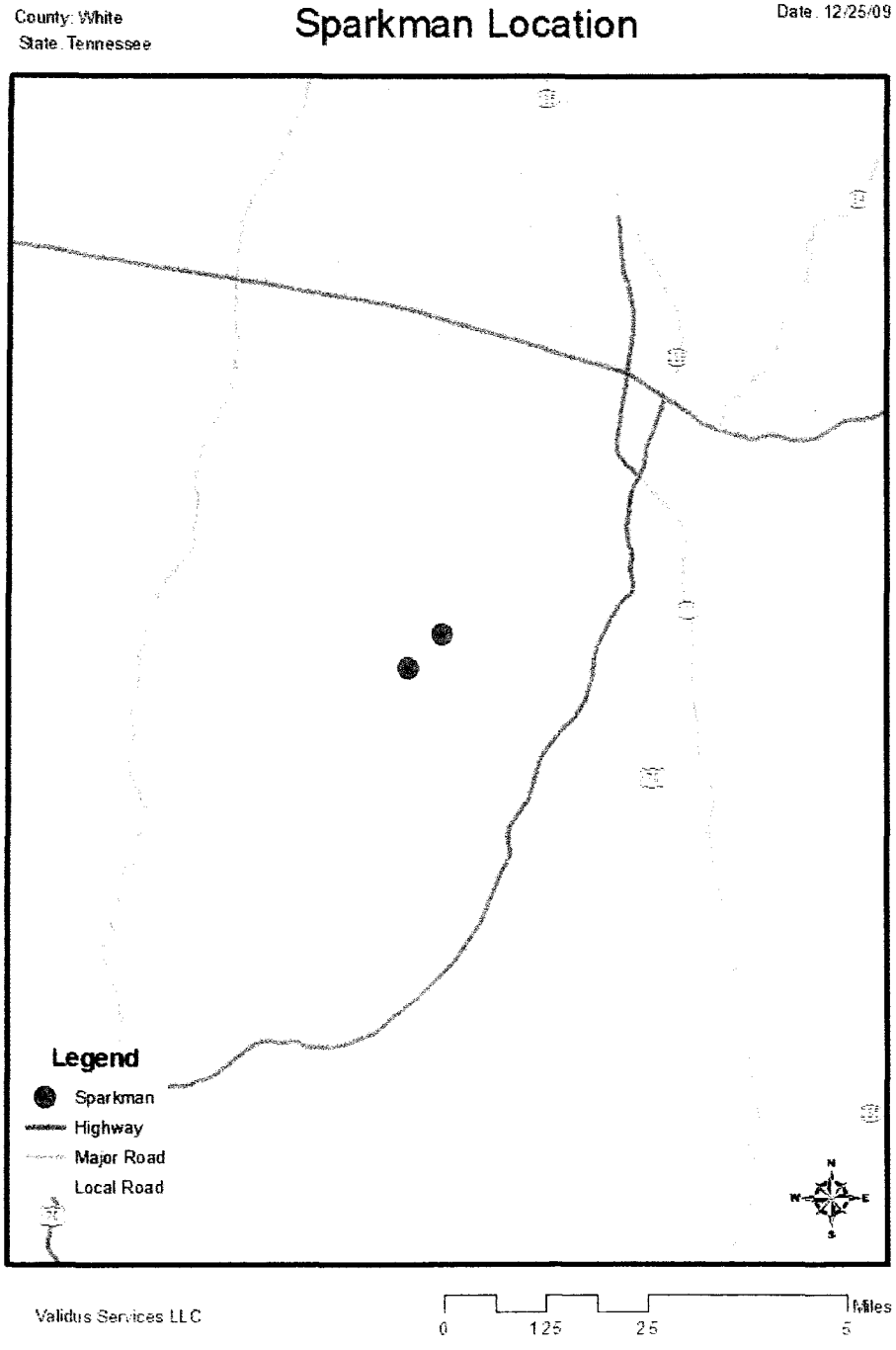
Addendum to Nutrient Management Plan:

By approval of this plan, I affirm that I have read, understand, and will comply with the following stipulations from Tennessee's CAFO rule (1200-4-5-.14) that apply to my CAFO operation.

1. All clean water (including rainfall) is diverted, as appropriate, from the production area.
2. All animals in confinement are prevented from coming in direct contact with waters of the state.
3. All chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.
4. All sampling of soil and manure/litter is conducted according to protocols developed by UT Extension.
5. All records outlined in 1200-4-5-.14(16) d-f will be maintained and available on-site.
6. Any confinement buildings, waste/wastewater handling or treatment systems, lagoons, holding ponds, and any other agricultural waste containment/treatment structures constructed after April 13, 2006 are or will be located in accordance with NRCS Conservation Practice Standard 313.
7. Dry-stacks of manure or stockpiles of litter are always kept covered under roof or tarps.
8. An *Annual Report* will be written for my operation and submitted between January 1 and February 15 of each year. It will include all information required by rule [1200-4-5-.14(16)g].

1.1. General Description of Operation

A Comprehensive Nutrient Management Plan (CNMP) is a conservation plan that is unique to animal feeding operations. This CNMP incorporates conservation practices and management activities which, when combined into a system, will help ensure that both agriculture production goals and natural resources protection goals are achieved. This CNMP addresses natural resource concerns dealing with soil erosion, manure, and organic byproducts, and their potential impacts on water quality, which may derive from an animal feeding operation (AFO). This CNMP is developed to assist an AFO owner/operator in meeting all applicable management activities and conservation practices which may be required to meet local, tribal, State, or Federal water quality goals, or regulations.



1.1. General Description of Operation

Sparkman Farms is a family dairy and poultry/layer operation that is located in White County Tennessee. The dairy operation consists of 250 lactating 25 dry cows, 10 calves and 25 breeding heifers located on approximately 56 acres of pasture land. The farm contains 16 acres of hayland and 240 acres of cropland. Liquid from the holding pond is land applied in both the spring and fall at a 1-P rate. Leachate from the silage area drains to the sump and is then transferred via pipeline to the holding pond. Manure from the bunk and calf pens is land applied based on land availability, while the excess is exported. A dry stack is to be installed. Manure from the dry stack and manure that accumulates in the 3 dairy cattle lots is exported. The poultry/layer operation consists of 2 layer houses with 10,000 birds in each house. All poultry litter is exported.

1.2. Sampling, Calibration and Other Statements

Manure sampling frequency:
Manure samples will be taken in the fall prior to spring application of manure.

Soil testing frequency:
Soil tests will be renewed every three years with a composite sample from each field which is correlated to fields identified in this plan.

Equipment calibration method and frequency:
Application equipment will be calibrated and this calibration is documented annually.

Measures to prevent direct contact of animals with water:
Watering facilities are to be installed in all feeding areas as well as fencing to discourage animal contact with state waters.

Manure applications:
All manure will be surface applied in spring and fall at phosphorus rates.
Heavy Use areas will be scraped when waste reaches 6-8 inches.

Manure applications in this plan are based on MWPS 2004 data. Manure analysis will be required annually after implementation of this plan and will follow the University of Tennessee Extension Service standard operating procedures for manure sampling.

Critical Use Areas:
Vegetation establishment is required around the buildings and storage structures to reduce soil erosion, this offsite nutrient and pathogen transport.

All disturbed areas, including slopes of pads, will be planted to permanent vegetation. If construction is during seasons not suited for planting warm or cool season grasses, temporary vegetation will be established until permanent vegetation can be established. Refer to Application and Maintenance of Conservation Practices and specifically NRCS practice standard 342-Critical Area Treatment for guidance.

All conservation practices and management activities planned and implemented as part of this CNMP should meet NRCS technical standards. For those elements, for which NRCS does not maintain technical standards, the criteria established by Land Grant Universities, industry, or other technically qualified entities will be met.

Veterinary Waste Management:

All veterinary waste will be either disposed of through an approved land fill and sharps containers or by the attending veterinarian.

Revision Trigger:
This nutrient management plan shall be reviewed when the results of soil tests are received to insure manure application rates are appropriate. This plan must be re-certified at least every five years. Modifications of the CNMP will require re-certification whenever there are substantial changes made to the animal or crop operations. Substantial changes are defined as a change in crop sequence that would not allow allocation of the nutrients using Manure Management Planner (MMP) or equivalent method, change in manure application area size greater than 15% or change in livestock numbers by greater than 10%.

CNMP Lifespan:
This nutrient management plan shall be reviewed when the results of soil tests are received to insure manure application rates are appropriate. This plan must be re-certified at least every five years. Updates of this CNMP will require re-certification whenever there are substantial changes made to the animal or crop operations. This plan will be amended when required by the permit.

25 year 24 hour statement
The system is designed and constructed to contain a 25yr/24hr storm event if the system is maintained according to this plan.

1.3. Resource Concerns

If checked, the indicated resource concerns have been identified and have been addressed in this plan.

Soil Quality Concerns

	Soil Quality Concern	*Fields*
X	Sheet and Rill Erosion	All Fields

Soil erosion will be addressed by maintaining a good vegetative stand year around including fall drilled wheat cover that is spring grazed..

Water Quality Concerns

	Water Quality Concern	*Fields*
A	Facility Wastewater Runoff	Production Area
B	Manure Runoff (Field Application)	All Fields
C	Manure Runoff (From Facilities)	Production Area
D	Nutrients in Groundwater	All Fields
E	Nutrients in Surface Water	All Fields

Water Quality concerns will be addressed by the following practices:
Waste storage will be enhanced in Headquarters (Concerns A and C)
Setbacks and enhanced nutrient management in all application fields (Concerns A, C, E)
Application setbacks (non-application) and proper application of nutrients will be implemented in all fields (Concerns B, D, E)

Other Concerns Addressed

	Other Concern	*Fields*
A	Aesthetics	Production Area
B	Maximize Nutrient Utilization	All
C	Minimize Nutrient Costs	All

Maintenance and proper operation of feeding area will address Concern A.
Manure and nutrients applied according to this plan will resolve concerns B and C above.
General clean up and grading of areas around facility will improve the overall aesthetics of the farm.
Following this plan will improve all other resource concerns

Section 2. Manure and Wastewater Handling and Storage

This element addresses the components and activities, existing and planned, associated with the production facility, feedlot, manure and wastewater storage, treatment structures and areas, and any area used to facilitate transfer of manure and wastewater.

The following sub-sections refer to all works of improvement addressed in this plan and include specifications addressing storage, collection, transfer, and application functions.

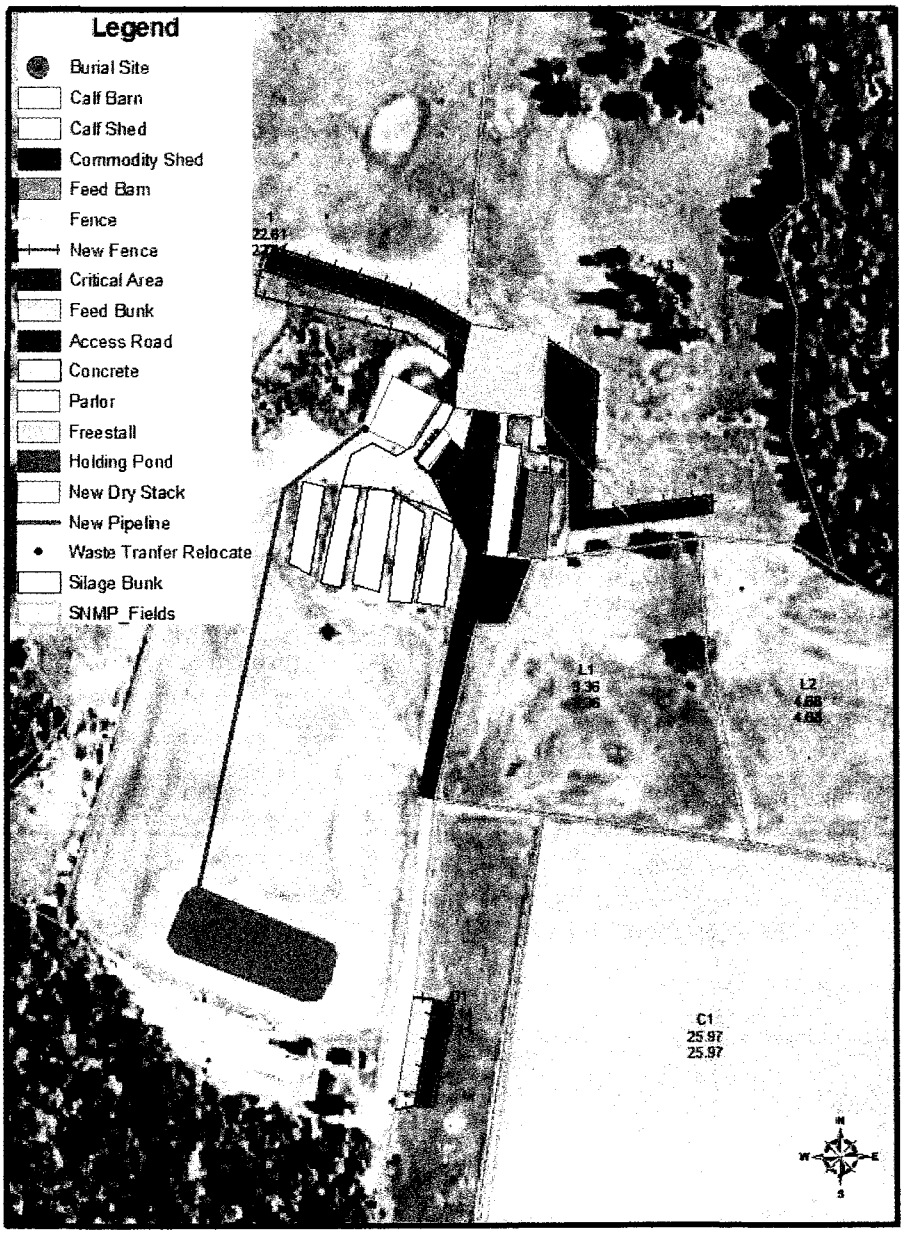
The proposed waste storage will consist of one dry stack/solid separator and storage pond. Manure transfer will be facilitated by the use of front loader or scraper. Manure will be scraped and transferred to the separator daily. Poultry houses are cleaned once each year in December after the birds are removed in late November.

2.1. Map(s) of Production Area

County: White
State: Tennessee

Sparkman Dairy Production Site

Date: 12/25/09



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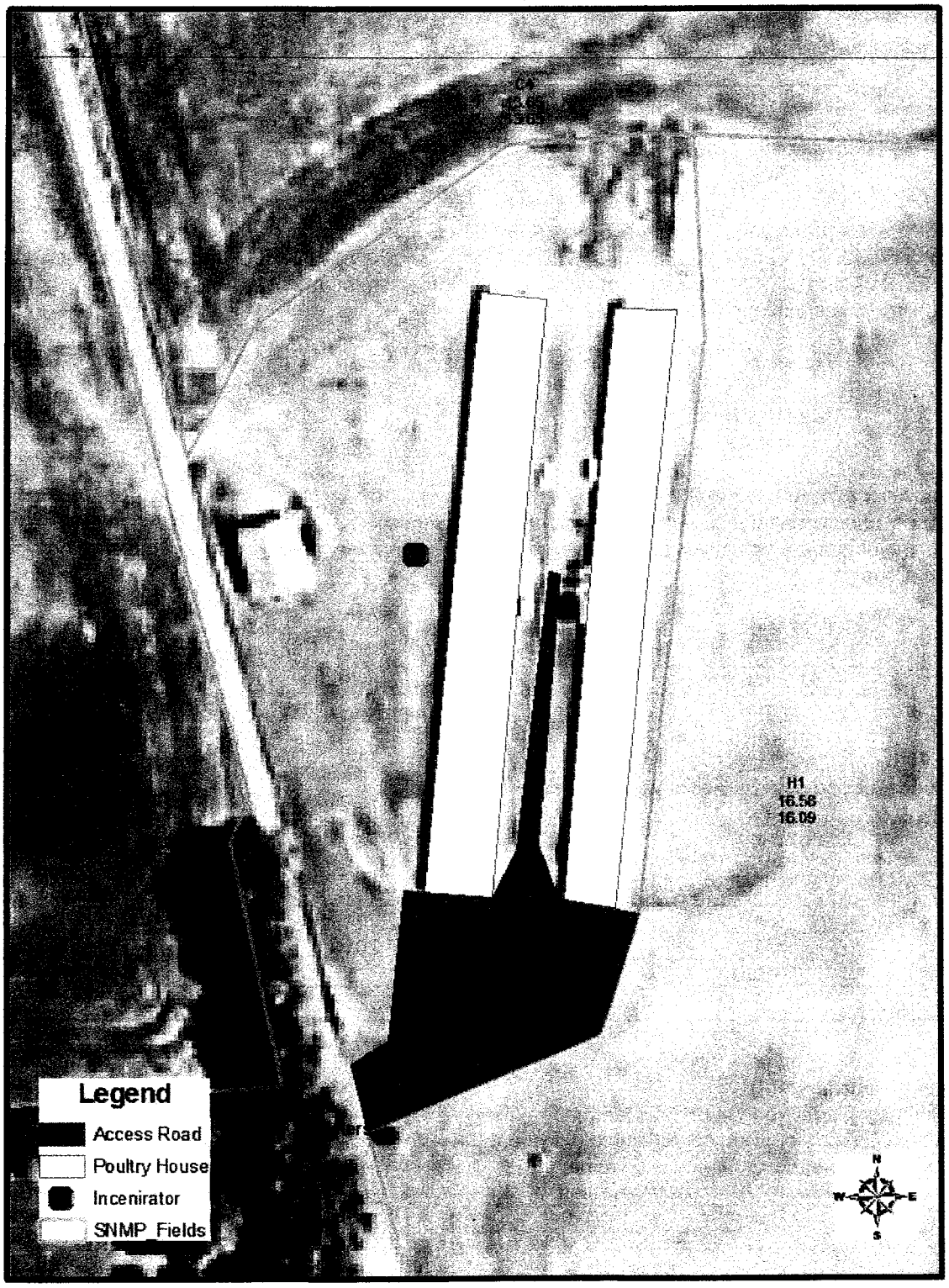
0 120 240 480 Feet

County: White
State: Tennessee

Sparkman Poultry Production Site

Date: 12/25/09



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2.2. Production Area Conservation Practices

Waste Storage Facility (313) - Manure Pack Storage
Temporary storage facility for manure produced by the 250 dairy cows will be managed as a manure pack. Straw type material will be used for bedding. The manure will be removed during the spring time periods.

Tract/Field	Planned amount (No)	Month	Year	Amount Applied	Date
Production Area	1	07	2010		
Total	**1**				

Waste Storage Facility (313) –Roofed Storage Facilities
Install a roofed facility to store liquid and/or solid waste on a temporary basis. Roofed structures may include covers on feedlots and poultry cake storage facilities. See the waste storage facility engineering plan for construction specifications and maintenance.

Tract/Field	Planned Amount (No)	Month	Year	Amount Applied	Date
Production Area	1	07	2010		
Total	**1**				

Heavy Use Area Protection (561)
Protect heavily used areas by providing soil protection with vegetation, surfacing material or mechanical structures. Building entry points will be protected by maintaining gravel, wood chips, or concrete cover on the designated areas.

Tract/Field	Planned amount (Ac)	Month	Year	Amount Applied	Date
Production Area	2	07	2010		
Total	**2**				

Fence (382)
Maintain fence for use as a barrier to wildlife, livestock, or people.

Tract/Field	Planned amount (No)	Month	Year	Amount Applied	Date
1	1100	07	2010		
L3	600	07	2010		
D1	500	07	2010		
Total	**2200**				

Critical Area Planting (342)
Establishing permanent vegetation on sites that have or are expected to have high erosion rates and that have physical, chemical, or biological conditions that prevent the establishment of vegetation with normal practices.

Tract/Field	Planned amount (Ac)	Month	Year	Amount Applied	Date
1	0.3	07	2010		
L3	0.5	07	2010		
D1	0.1	07	2010		
Total	**0.9**				

Mulching (484)
Mulch disturbed area with 2 tons (approximately 90 lbs/1000 square feet) of evenly distributed hay so that approximately 70 percent of the surface is covered.

Tract/Field	Planned amount (Ac)	Month	Year	Amount Applied	Date
1	0.3	07	2010		
L3	0.5	07	2010		
D1	0.1	07	2010		
Total	**0.9**				

Animal Mortality Facility (316)
An on-farm facility for the treatment or disposal of livestock and poultry carcasses.

Tract/Field	Planned amount (Ac)	Month	Year	Amount Applied	Date
Headquarters	1	07	2010		
Total	**1**				

Roof Runoff (558)

Collect and remove roof runoff from within a contaminated waste stream. Install new gutters and downspouts on new construction and as appropriate, install new or provide needed maintaince to existing gutters and downspouts.

Tract/Field	Planned amount (No)	Month	Year	Amount Applied	Date
All buildings	8	07	2010		
Total	**8**				

Animal Mortality Management (316)
Normal poultry mortality will be incinerated. Normal cattle mortality will be buried. All catastrophic mortality will be buried.

Tract/Field	Planned amount (No)	Month	Year	Amount Applied	Date
Production Area	1 incinerator			1	Prior
Production Area	1 burial site			1	Prior
Total	**2**			2	

Manure Transfer (634)
A manure conveyance system using structures, conduits, or equipment. To transfer animal manure (bedding material, spilled feed, process and wash water, and other residues associated with animal production may be included) through a hopper or reception pit, a pump (if applicable), a conduit, or hauling equipment to a manure storage/treatment facility.

Tract/Field	Planned amount (Ft)	Month	Year	Amount Applied	Date
Headquarters	1	07	2010		
Total	**1**				

Pipeline (616)
Manure transfer pipeline from free-stall to the holding pond.

Tract/Field	Planned amount (Ft)	Month	Year	Amount Applied	Date
Headsquarters	1000	07	2010		
Total	**1000**				

Waste Treatment (629)

The mechanical, chemical, or biological treatment of agricultural waste. To use mechanical, chemical, or biological treatment facilities and/processes as part of an agricultural waste management system.

Tract/Field	Planned amount (Ft)	Month	Year	Amount Applied	Date
Headquarters	1	07	2010		
Total	**1**				

2.3. Manure Storage

Storage ID	Type of Storage	Pumpable or Spreadable Capacity	Annual Manure Collected	Maximum Days of Storage
Holding Pond	Holding pond	783,000 Gal	1,837,792 Gal	156
Dry Stack	Dairy manure dry stack	300 Tons	563 Tons	194
Bunk	Manure pack	50 Tons	100 Tons	183
Calf Barn	Manure pack	36 Tons	36 Tons	365
Pasture	Open lot	700 Tons	1,220 Tons	209
Poultry House 1	In-house litter storage	200 Tons	195 Tons	374
Poultry House 2	In-house litter storage	200 Tons	195 Tons	374

2.4. Animal Inventory

Animal Group	Type or Production Phase	Number of Animals	Average Weight (Lbs)	Confinement Period	Manure Collected (%)	Storage Where Manure Will Be Stored
Wet Cows 1	Milk cow (dairy)	250	1,200	Jan Early - Dec Early	20	Dry Stack
Wet Cows 2	Milk cow (dairy)	250	1,200	Jan Early - Dec Early	66	Holding Pond
Wet Cows 3	Milk cow (dairy)	250	1,200	Jan Early - Dec Late	14	Pasture
Dry Cows 1	Dry cow (dairy)	25	1,400	Jan Early - Dec Early	30	Bunk
Dry Cows 2	Dry cow (dairy)	25	1,400	Jan Early - Dec Late	70	Pasture
Calves	Calf (dairy)	10	200	Jan Early - Dec Late	100	Dry Stack
Weaned Hfr 1	Weaned heifer/steer (dairy)	25	400	Jan Early - Dec Late	60	Calf Barn
Weaned Hfr 2	Weaned heifer/steer (dairy)	25	400	Jan Early - Dec Late	40	Pasture
House 1	Layer	10,000	5	Jan Early - Nov Early	100	Poultry House 1
House 2	Layer	10,000	5	Jan Early - Nov Early	100	Poultry House 2

(1) Number of Animals is the average number of animals that are present in the production facility at any one time.
(2) If Manure Collected is less than 100%, this indicates that the animals spend a portion of the day outside of the production facility or that the production facility is unoccupied one or more times during the confinement period.

2.5. Normal Mortality Management

To decrease non-point source pollution of surface and ground water resources, reduce the impact of odors that result from improperly handled animal mortality, and decrease the likelihood of the spread of disease or other pathogens, approved handling and utilization methods shall be implemented in the handling of normal mortality losses. If on-farm storage or handling of animal mortality is done, NRCS Standard 316, Animal Mortality Facility, will be followed for proper management of dead animals.

Plan for Proper Management of Dead Animals

The following table describes how you plan to manage normal animal mortality in a manner that protects surface and ground water quality.

Sparkman Farms will use burial as the primary mortality disposal method. All mortalities will be collect upon discovery and buried.
Dig a large pit or trench as located on the plan map. Insert dead animals daily, and cover them with one to two feet of soil. The pit should be graded so that it does not impound water. Runoff from the pit should flow into a grass filter. Note: When adequate drainage is not provided, these pits or trenches fill with water and carcasses may actually float to the surface. The water in the pit is very bacteria-laden and may be a hazard to both animal and human health. There is also high potential for ground water contamination from both bacteria and nutrients.
Burial trenches and pits must have at least a 2.0-foot separation between the bottom of the trench and groundwater. The pits should also have a berm to divert rainfall and runoff from the site. The soil should be able to infiltrate any rainfall that falls directly into the pit.
Vectors (dogs, rats, snakes, flies, etc.) are potential problems in a burial situation. Carcasses must be covered daily as to reduce vectors in and around the trench or pit.
When the burial pit is full, the site will be capped with a mound of soil so that precipitation is not allowed to collect in the closed pit. Also, the area will be grassed as to prevent erosion. The burial area will be monitored so that these conditions remain after settling of decomposing carcasses and capping material.

The Sparkman Farms poultry operation will use incineration as the primary mortality disposal method. All mortalities will be collect upon discovery and incinerated.
The following criteria shall be met in order to qualify for an exemption from an air permit:

1. The emission of particulate matter should be less than one pound per hour at the maximum rated capacity.
2. The incinerator should have a rated capacity of 500 pounds per hour or smaller which burns virgin fuel only.
3. The incinerator shall not exceed an opacity limit of 10%.

Incinerators used for dead animal disposal shall be properly operated and maintained. Operation shall be as specified in the owner's manual provided with the incinerator. The owner's manual shall be kept on site.
The use of the incinerator to dispose of waste oil, hazardous, or any other waste chemical is prohibited.

The use of the incinerator should be limited to dead animal disposal only.
Incinerators shall be operated in such a manner as is necessary to prevent the emission of objectionable odors.

The incinerator should have yearly maintenance performed, as necessary. Replace firebricks and scrape and repaint metal components, particularly the flue-stock, with heat resistant outdoor paint.

2.6. Planned Manure Exports off the Farm

Month-Year	Manure Source	Amount	Receiving Operation	Location
Dec 2010	Poultry House 1	10 Tons	External Operation	External Operation
Dec 2010	Poultry House 2	10 Tons	External Operation	External Operation
Apr 2011	Dry Stack	270 Tons	External Operation	External Operation
Apr 2011	Pasture	500 Tons	External Operation	External Operation
Oct 2011	Dry Stack	290 Tons	External Operation	External Operation
Oct 2011	Pasture	600 Tons	External Operation	External Operation
Dec 2011	Poultry House 1	195 Tons	External Operation	External Operation
Dec 2011	Poultry House 2	195 Tons	External Operation	External Operation
Apr 2012	Bunk	48 Tons	External Operation	External Operation
Apr 2012	Calf Barn	18 Tons	External Operation	External Operation
Apr 2012	Dry Stack	270 Tons	External Operation	External Operation
Apr 2012	Pasture	600 Tons	External Operation	External Operation
Oct 2012	Dry Stack	270 Tons	External Operation	External Operation
Oct 2012	Pasture	600 Tons	External Operation	External Operation
Dec 2012	Poultry House 1	195 Tons	External Operation	External Operation
Dec 2012	Poultry House 2	195 Tons	External Operation	External Operation
Apr 2013	Dry Stack	270 Tons	External Operation	External Operation
Apr 2013	Pasture	600 Tons	External Operation	External Operation
Oct 2013	Dry Stack	300 Tons	External Operation	External Operation
Oct 2013	Pasture	600 Tons	External Operation	External Operation
Dec 2013	Poultry House 1	195 Tons	External Operation	External Operation
Dec 2013	Poultry House 2	195 Tons	External Operation	External Operation
Mar 2014	Bunk	56 Tons	External Operation	External Operation
Mar 2014	Calf Barn	34 Tons	External Operation	External Operation
Apr 2014	Dry Stack	270 Tons	External Operation	External Operation
Apr 2014	Pasture	600 Tons	External Operation	External Operation
Oct 2014	Dry Stack	300 Tons	External Operation	External Operation
Oct 2014	Pasture	600 Tons	External Operation	External Operation
Dec 2014	Poultry House 1	195 Tons	External Operation	External Operation
Dec 2014	Poultry House 2	195 Tons	External Operation	External Operation
Mar 2015	Bunk	47 Tons	External Operation	External Operation
Mar 2015	Calf Barn	36 Tons	External Operation	External Operation
Apr 2015	Dry Stack	270 Tons	External Operation	External Operation
Apr 2015	Pasture	600 Tons	External Operation	External Operation
Sep 2015	Bunk	51 Tons	External Operation	External Operation
Sep 2015	Calf Barn	18 Tons	External Operation	External Operation
Oct 2015	Dry Stack	270 Tons	External Operation	External Operation
Oct 2015	Pasture	600 Tons	External Operation	External Operation

2.7. Planned Manure Imports onto the Farm

Month-Year	Manure's Animal Type	Amount	Originating Operation	Location

(None)

2.8. Planned Internal Transfers of Manure

Month-Year	Manure Source	Amount	Manure Destination

(None)

Section 3. Farmstead Safety and Security

3.1. Emergency Response Plan

In Case of an Emergency Storage Facility Spill, Leak or Failure

Implement the following first containment steps:

a. *Stop all other activities to address the spill.*
b. Stop the flow. For example, use skid loader or tractor with blade to contain or divert spill or leak.
c. Call for help and excavator if needed.
d. Complete the clean-up and repair the necessary components.
e. Assess the extent of the emergency and request additional help if needed.

In Case of an Emergency Spill, Leak or Failure during Transport or Land Application

Implement the following first containment steps:

a. Stop all other activities to address the spill and stop the flow.
b. Call for help if needed.
c. If the spill posed a hazard to local traffic, call for local traffic control assistance and clear the road and roadside of spilled material.
d. Contain the spill or runoff from entering surface waters using straw bales, saw dust, soil or other appropriate materials.
e. If flow is coming from a tile, plug the tile with a tile plug immediately.
f. Assess the extent of the emergency and request additional help if needed.

Emergency Contacts

Department / Agency	Phone Number
Fire	911
Rescue services	911
State veterinarian	615-781-5310
Sheriff or local police	911

Nearest available excavation equipment/supplies for responding to emergency

Equipment Type	Contact Person	Phone Number

Contacts to be made by the owner or operator within 24 hours

Organization	Phone Number
EPA Emergency Spill Hotline	1-888-891-8332
County Health Department	(931) 836-2201
Other State Emergency Agency	931-823-1465

Be prepared to provide the following information:

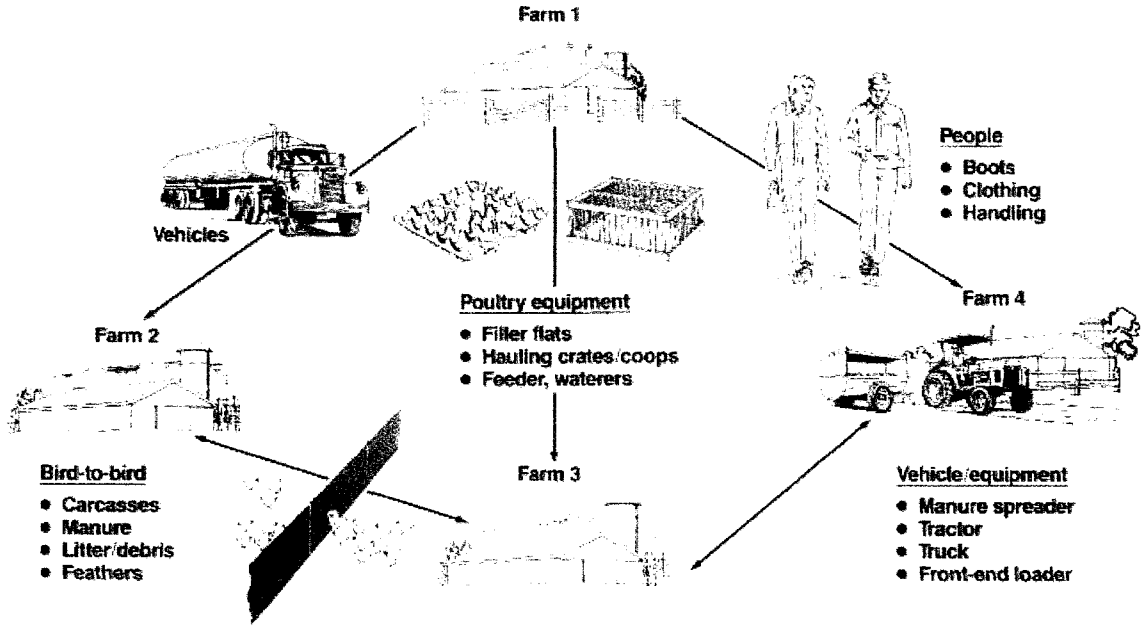
a. Your name and contact information.
b. Farm location (driving directions) and other pertinent information.
c. Description of emergency.
d. Estimate of the amounts, area covered, and distance traveled.
e. Whether manure has reached surface waters or major field drains.
f. Whether there is any obvious damage: employee injury, fish kill, or property damage.
g. Current status of containment efforts.

3.2. Biosecurity Measures

Some examples of good bio-security practices include:

a. Permit only essential workers and vehicles on the premises.
b. Provide clean clothing and a disinfection procedure for employees and visitors. Know your visitor's travel history.
c. Report signs of disease to your veterinarian.

Biosecurity is critical to protecting livestock and poultry operations. Visitors must contact and check in with the producer before entering the operation or any production or storage facility.
How Diseases Spread



Steps to Take to Avoid Disease Spread - Poultry

To reduce the risk of introducing disease into a flock, maintain a biosecurity barrier (physical barrier, personal hygiene, and equipment sanitation) between wildlife, poultry facilities, other commercial avian facilities, and pet birds. Some examples of good biosecurity practices include:

d. Permit only essential workers and vehicles on the premises.
e. Provide clean clothing and a disinfection procedure for employees and visitors. Know your visitor's travel history.
f. Clean and disinfect vehicles at the farm entrance.
g. Avoid visiting other avian facilities.
h. Do not keep pet birds.
i. Protect the flock from exposure to wild birds.
j. Control movement associated with the disposal of bird carcasses, litter, and manure.
k. Quarantine new additions to the flock. Never allow people or material to move from the quarantined birds to the flock.
l. Report signs of disease to your veterinarian.

3.3. Catastrophic Mortality Management

Refer to NRCS standards, or state guidance, regarding appropriate catastrophic animal mortality handling methods.

Plan for Catastrophic Animal Mortality Handling

The following table describes how you plan to manage catastrophic loss of animals in a manner that protects surface and ground water quality. You must follow all national, state and local laws, regulations and guidelines that protect soil, water, air, plants, animals and human health.

Burial will be used to dispose of catastrophic mortalities. Contact the state veterinarian's office and the local TDEC office. Burial will be used to dispose of catastrophic mortalities. Dig a large pit or trench as located on the plan map. Insert dead animals daily, and cover them with one to two feet of soil. The pit should be graded so that it does not impound water. Runoff from the pit should flow into a grass filter. Note: When adequate drainage is not provided, these pits or trenches fill with water and carcasses may actually float to the surface. The water in the pit is very bacteria-laden and may be a hazard to both animal and human health. There is also high potential for ground water contamination from both bacteria and nutrients. Burial trenches and pits must have at least a 2.0-foot separation between the bottom of the trench and groundwater. The pits should also have a berm to divert rainfall and runoff from the site. The soil should be able to infiltrate any rainfall that falls directly into the pit. Vectors (dogs, rats, snakes, flies, etc.) are potential problems in a burial situation. Carcasses must be covered daily as to reduce vectors in and around the trench or pit. When the burial pit is full, the site will be capped with a mound of soil so that precipitation is not allowed to collect in the closed pit. Also, the area will be grassed as to prevent erosion. The burial area will be monitored so that these conditions remain after settling of decomposing carcasses and capping material. Contact the state veterinarians office and the local TDEC office.

Important! In the event of catastrophic animal mortality, contact the following authority before beginning carcass disposal:

Authority name APHIS
Contact name Phillip Gordon
Phone number 615-781-5310

3.4. Chemical Handling

If checked, the indicated measures will be taken to prevent chemicals and other contaminants from contaminating process waste water or storm water storage and treatment systems.

	This is not a regulatory-agency permitted facility. This section does not apply.

	Measure
X	All chemicals are stored in proper containers. Expired chemicals and empty containers are properly disposed of in accordance with state and federal regulations. Pesticides and associated refuse are disposed of in accordance with the FIFRA label.
X	Chemical storage areas are self-contained with no drains or other pathways that will allow spilled chemicals to exit the storage area.
X	Chemical storage areas are covered to prevent chemical contact with rain or snow.
X	Emergency procedures and equipment are in place to contain and clean up chemical spills.
X	Chemical handling and equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.
	All chemicals are custom applied and no chemicals are stored at the operation. Equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.

Section 4. Land Treatment

This element addresses evaluation and implementation of appropriate conservation practices on sites proposed for land application of manure and organic byproducts from an Animal Feeding Operation. On fields where manure and organic byproducts are applied as beneficial nutrients, it is essential that runoff and soil erosion be minimized, to allow for plant uptake of these nutrients.

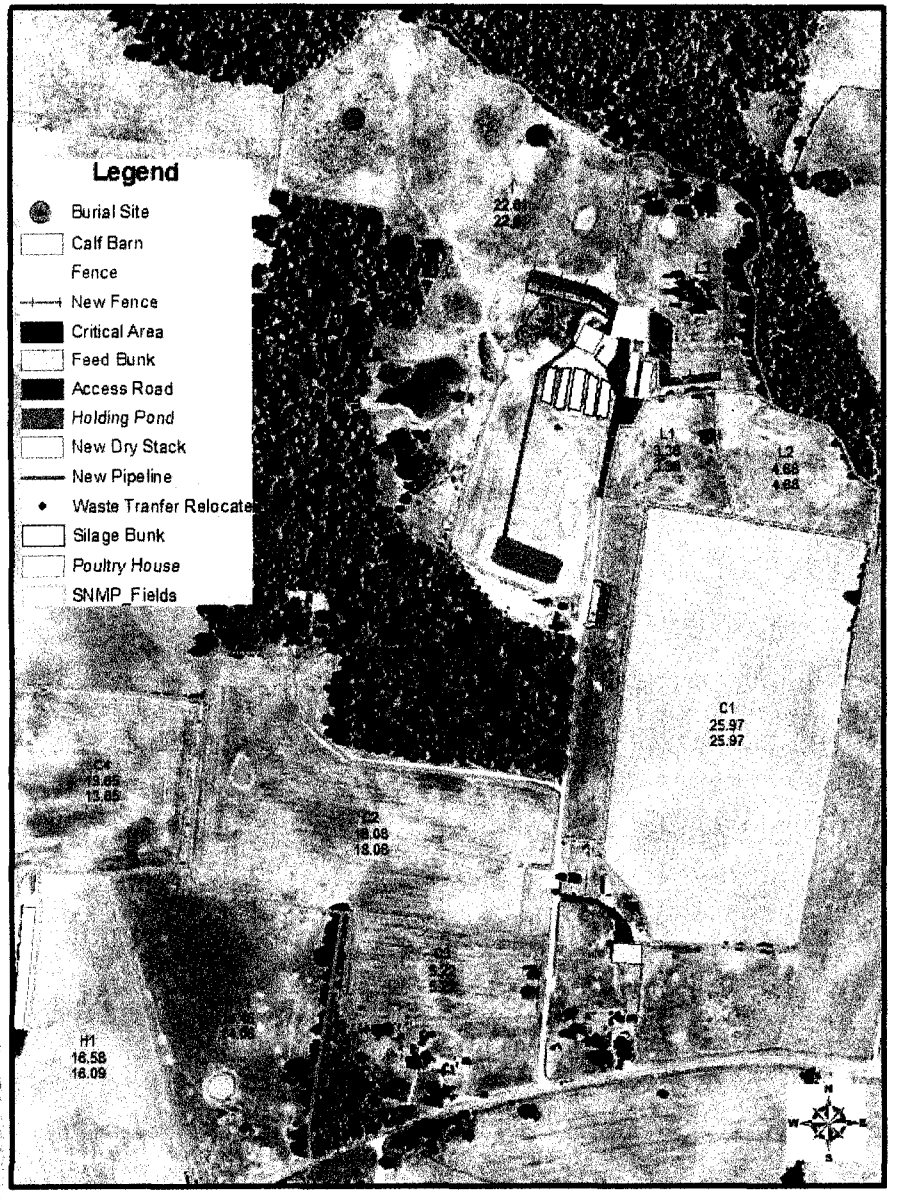
4.1. Map(s) of Fields and Conservation Practices

Fields 1,D-1, CP-1 and lots L-1. L-2 and L-3 are pastureland.
Field H-1 is hayland.
Fields 1-12 are cropland.

County White
State Tennessee

Sparkman CPO 1

Date 12/25/09



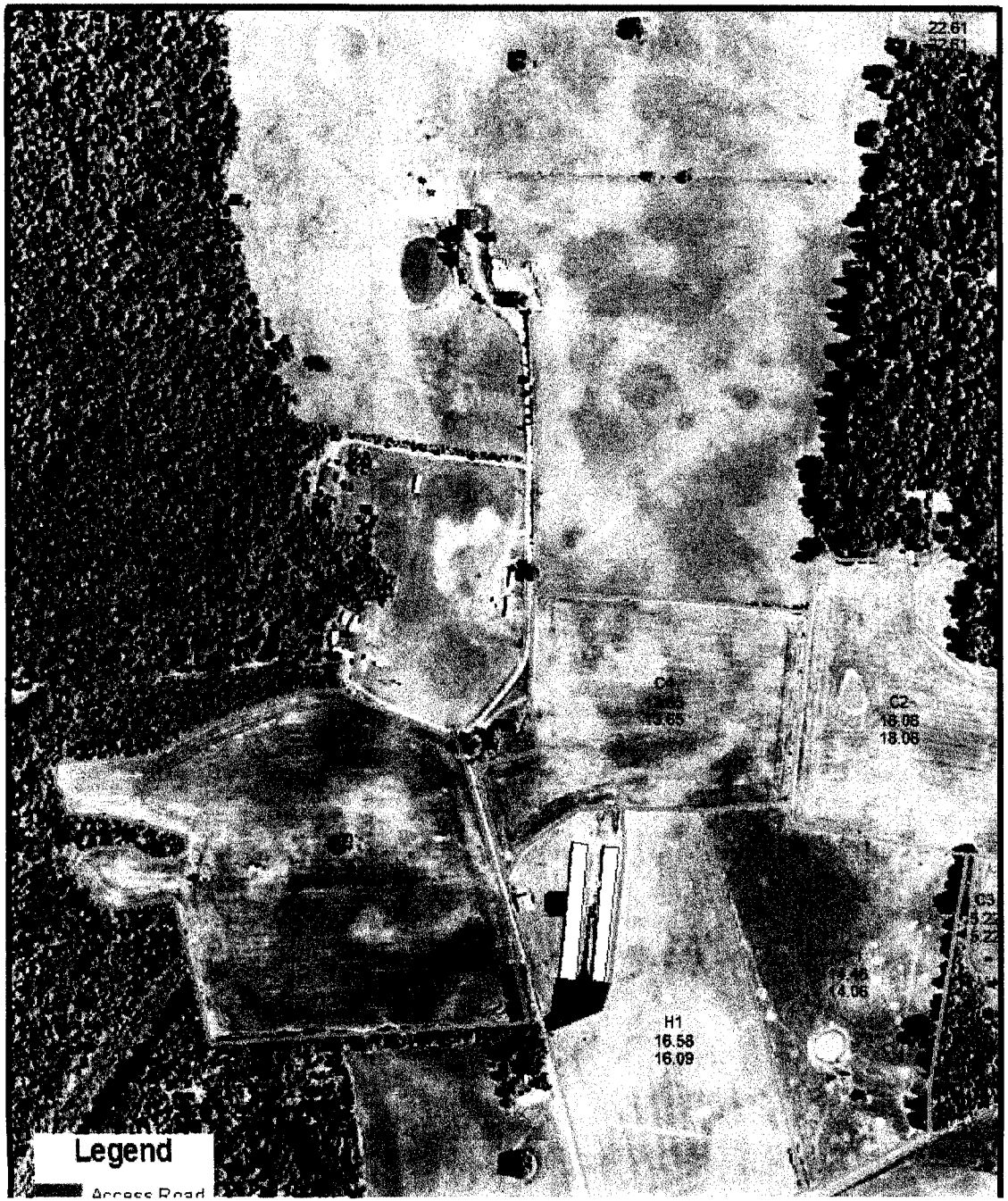
Validus Services LLC

0 285 570 1,140 Feet

County: White
State: Tennessee

Sparkman CPO 2

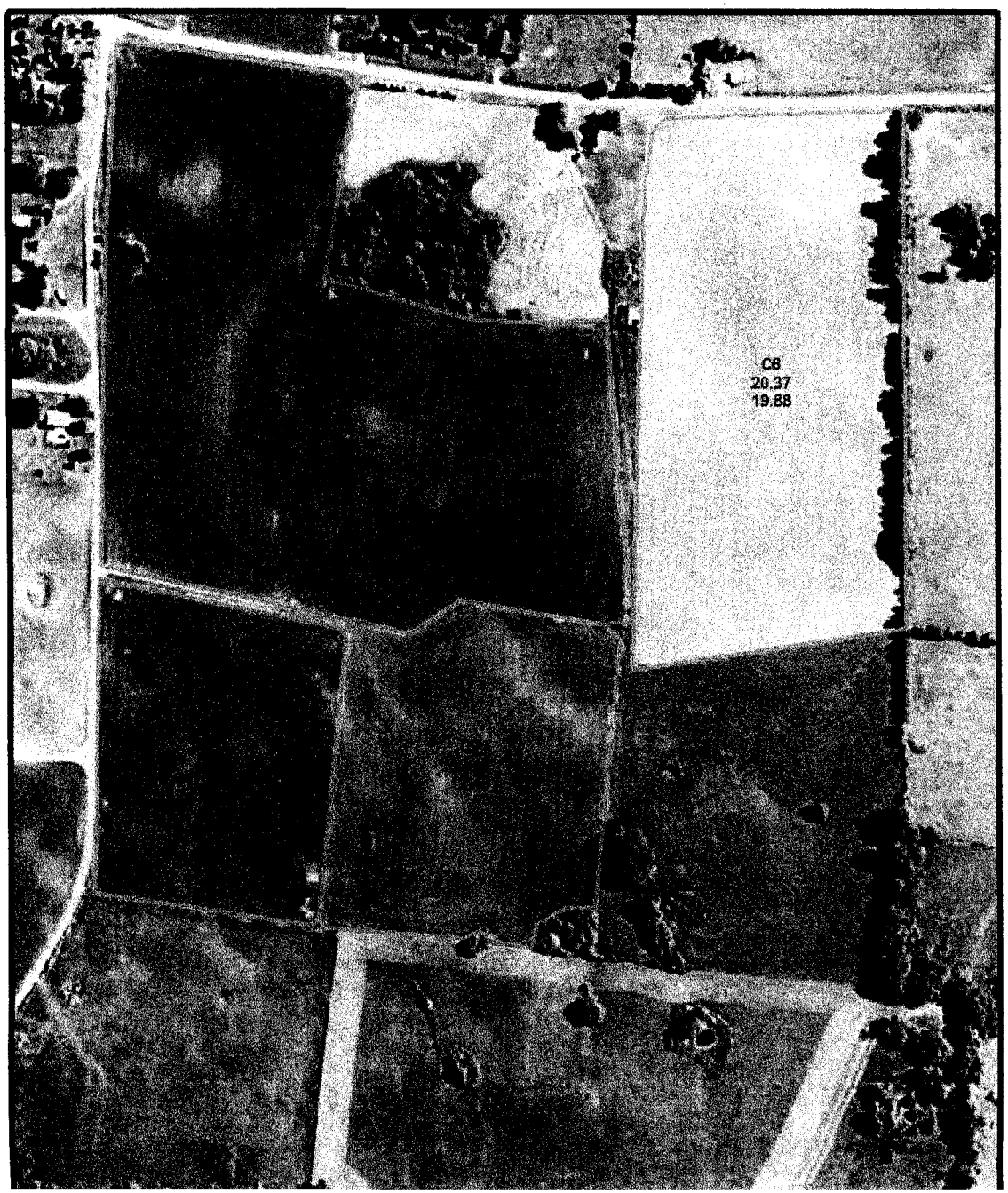
Date: 12/25/09



County White
State Tennessee

Sparkman CPO 3

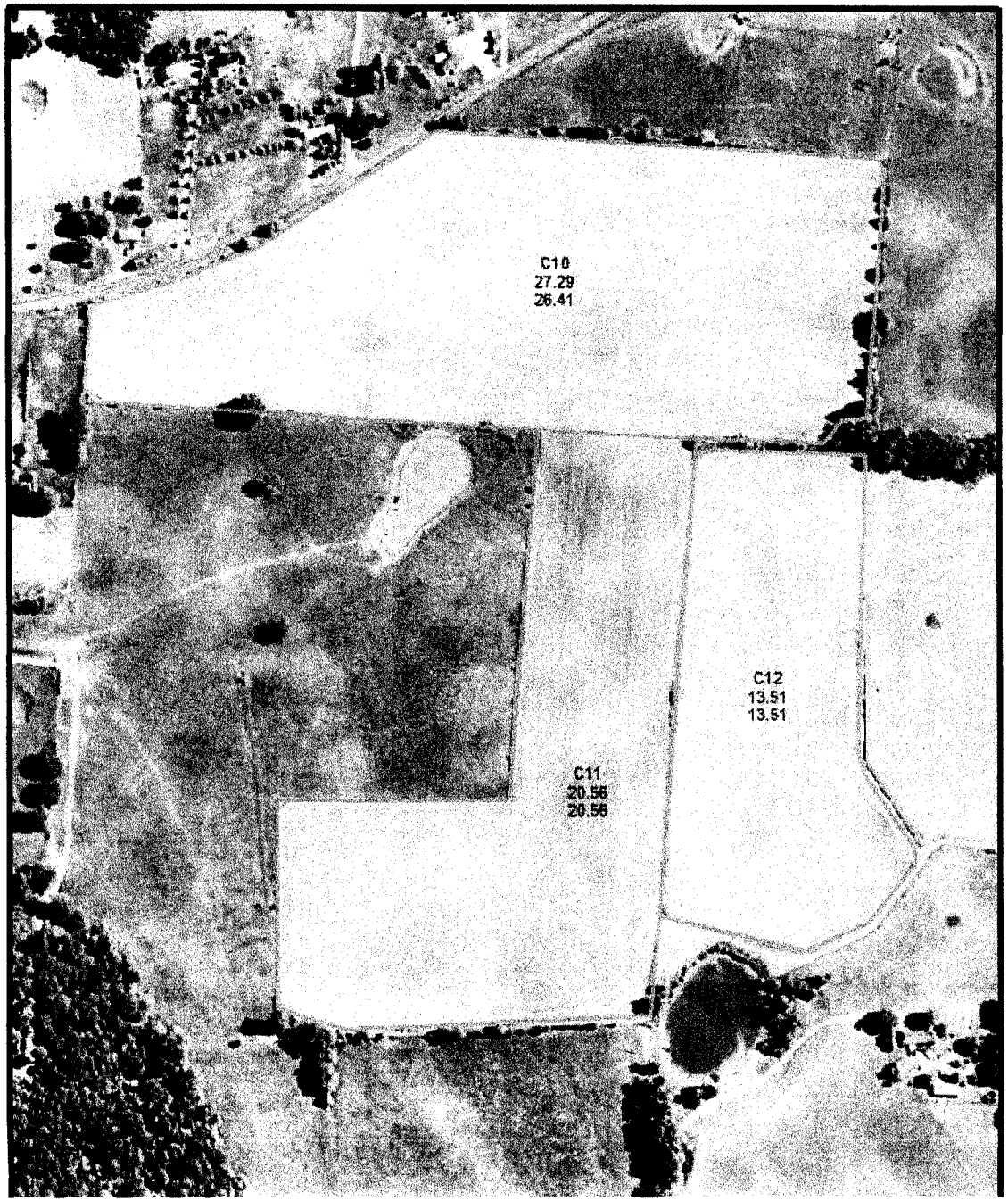
Date 12/25/09



County: White
State: Tennessee

Sparkman CPO 4

Date: 12/25/09



4.2. Land Treatment Conservation Practices

Forage Harvest Management (511)

Cutting and removal of forages from the field will be managed to produce the desired quality and quantity, to promote vigorous regrowth, and to maintain stand life. Maintain a minimum of 3-inch stubble height.

Tract/Field	Planned amount (Ac)	Month	Year	Amount Applied	Date
H-1	16.58	05	2010		
Total	**16.58**				

PASTURE AND HAYLAND PLANTING (512)

Fertilize according to current soil test requirements for establishment and control weeds by mowing or use of approved herbicides. Prepare a clean, firm, weed free seedbed for planting.

Tract/Field	Planned amount (Ac)	Month	Year	Amount Applied	Date
1	22.61	05	2010		
L-1	3.36	05	2010		
L-2	4.68	05	2010		
L-3	7.15	05	2010		
D-1	4.14	05	2010		
CP-1	14.46	05	2010		
H-1	16.58	05	2010		
Total	**72.98**				

Prescribed Grazing (528)

Apply this practice annually for the purpose of forage production for harvest by grazing livestock while maintaining forage health and vigor for reduced soil erosion, water quality benefits and improved animal performance. Plan grazing duration and animal number of livestock to match forage production. Do not graze closer than minimum heights for the species shown below. Do not graze until well established. This will be, at a minimum, the entire first year's growing season. If grass is not established by the end of the first growing season, defer through the second. Livestock water will be supplied.

Maintain Proper Forage Height

Forage Species	Height to Begin Grazing	Height to Terminate Grazing	Recovery Time Estimate (Days)
Tall Fescue Crabgrass	5-8"	3"	14-45
Tall Fescue (Endophyte Free) Orchardgrass	5-8"	4"	14-45

NUTRIENT MANAGEMENT (590)

To maintain or improve the chemical and/or biological condition of the soil, manage the amount, form, placement, and timing of plant nutrients. Fertilizer and animal waste application, soil testing, manure analysis, and record keeping will be carried out as specified by the Nutrient Management Section of this Comprehensive Nutrient Management Plan. All nutrients will be applied according to a current soils test. If animal waste is to be applied, a soil test will be required every year. Apply nutrients based on current (no older than 3 years) soil test results.

Tract/Field	Planned amount (Ac)	Month	Year	Amount Applied	Date
C-1	25.97	05	2010		
C-2	18.08	05	2010		
C-3	5.22	05	2010		
C-4	13.65	05	2010		
C-5	25.35	05	2010		
C-6	20.37	05	2010		
C-7	30.16	05	2010		
C-8	10.53	05	2010		
C-9	12.46	05	2010		
C-10	27.29	05	2010		
C-11	20.56	05	2010		
C-12	13.51	05	2010		
1	22.61	05	2010		
L-1	3.36	05	2010		
L-2	4.68	05	2010		
L-3	7.15	05	2010		
D-1	4.14	05	2010		
CP-1	14.46	05	2010		
H-1	16.58	05	2010		
Total	**296.13**				

PEST MANAGEMENT (595)

Chemical Control: Read and follow all label directions. Calibrate application equipment prior to application to ensure proper application rates for specific chemicals. Dispose of unused material according to label directions. Mechanical Control: Shred or mow weeds about one inch above the average height of the grass or crop. In areas of heavy competition, remove piled material after mowing to prevent shading or smothering of desirable vegetation. Weeds should be controlled prior to bloom stage.

Tract/Field	Planned amount (Ac)	Month	Year	Amount Applied	Date
C-1	25.97	05	2010		
C-2	18.08	05	2010		
C-3	5.22	05	2010		
C-4	13.65	05	2010		
C-5	25.35	05	2010		

C-6	20.37	05	2010		
C-7	30.16	05	2010		
C-8	10.53	05	2010		
C-9	12.46	05	2010		
C-10	27.29	05	2010		
C-11	20.56	05	2010		
C-12	13.51	05	2010		
1	22.61	05	2010		
L-1	3.36	05	2010		
L-2	4.68	05	2010		
L-3	7.15	05	2010		
D-1	4.14	05	2010		
CP-1	14.46	05	2010		
H-1	16.58	05	2010		
Total	**296.13**				

Waste Utilization (633)

The enclosed "Nutrient Management Plan" in Section 4 outlines the proper manure application rates, timing, and methods of application to provide needed crop nutrients and to minimize the transport of nutrients to ground and surface water. Follow setbacks (non-manure) applications areas outlined on maps.

Tract/Field	Planned amount (Ac)	Month	Year	Amount Applied	Date
C-1	25.97	05	2010		
C-2	18.08	05	2010		
C-3	5.22	05	2010		
C-4	13.65	05	2010		
C-5	25.35	05	2010		
C-6	19.88	05	2010		
C-7	28.68	05	2010		
C-8	9.65	05	2010		
C-9	12.46	05	2010		
C-10	26.41	05	2010		
C-11	20.56	05	2010		
C-12	13.51	05	2010		
H-1	16.09	05	2010		
Total	**251.6**				

Section 5. Soil and Risk Assessment Analysis

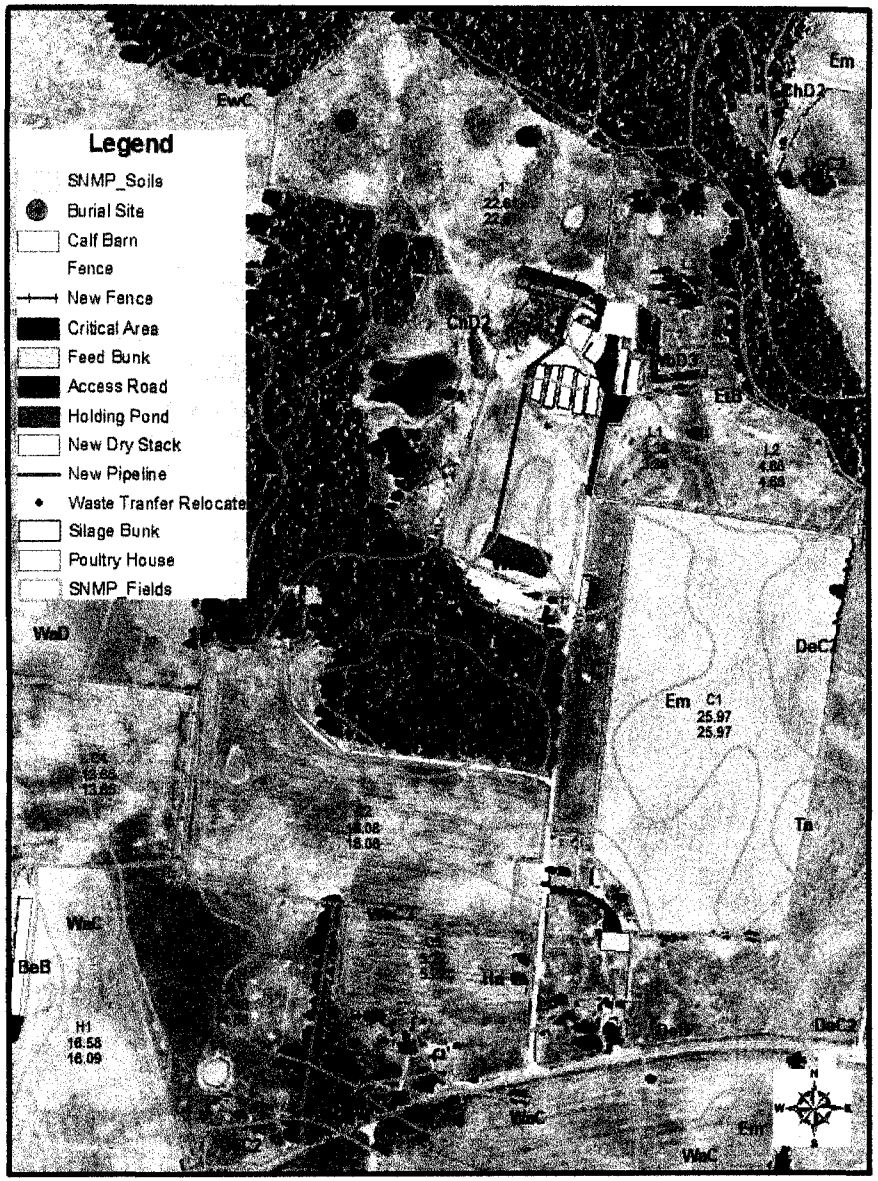
5.1. Soil Information

Field	Map Unit	Soil Component Name	Surface Texture	Slope Range (%)	OM Range (%)	Bedrock Depth (in.)
1	CnD2	Christian	GR-SIL	12-20%	1-3%	
L1	WaC	Waynesboro	SIL	5-12%	0.5-2%	
L2	WaC	Waynesboro	SIL	5-12%	0.5-2%	
L3	CnD2	Christian	GR-SIL	12-20%	1-3%	
D1	WaC2	Waynesboro	SIL	5-12%	0.5-2%	
CP1	Ha	Hamblen	SIL	0-2%	1-3%	
C1	Em	Emory	SIL	0-3%	1-4%	
C2	WbC3	Waynesboro	SICL	5-12%	0.25-1%	
C3	WbC3	Waynesboro	SICL	5-12%	0.25-1%	
C4	Ha	Hamblen	SIL	0-2%	1-3%	
C5	Em	Emory	SIL	0-3%	1-4%	
H1	WaC	Waynesboro	SIL	5-12%	0.5-2%	
C10	WaC	Waynesboro	SIL	5-12%	0.5-2%	
C11	WaC	Waynesboro	SIL	5-12%	0.5-2%	
C12	DeC2	Decatur	SIL	5-12%	0.5-2%	
C6	DeC2	Decatur	SIL	5-12%	0.5-2%	
C7	DeC2	Decatur	SIL	5-12%	0.5-2%	
C8	EwC	Etowah	GR-SIL	5-12%	1-3%	
C9	WaC	Waynesboro	SIL	5-12%	0.5-2%	

County: White
State: Tennessee

Sparkman Soils 1

Date: 12/25/09



Validus Services LLC

0 285 570 1,140 Feet

County White
State Tennessee

Sparkman Soils 2

Date 12/25/09

Validus Services LLC

0 0.04 0.08 0.16 Miles

County: White
State: Tennessee

Sparkman Soils 3

Date: 12/25/09

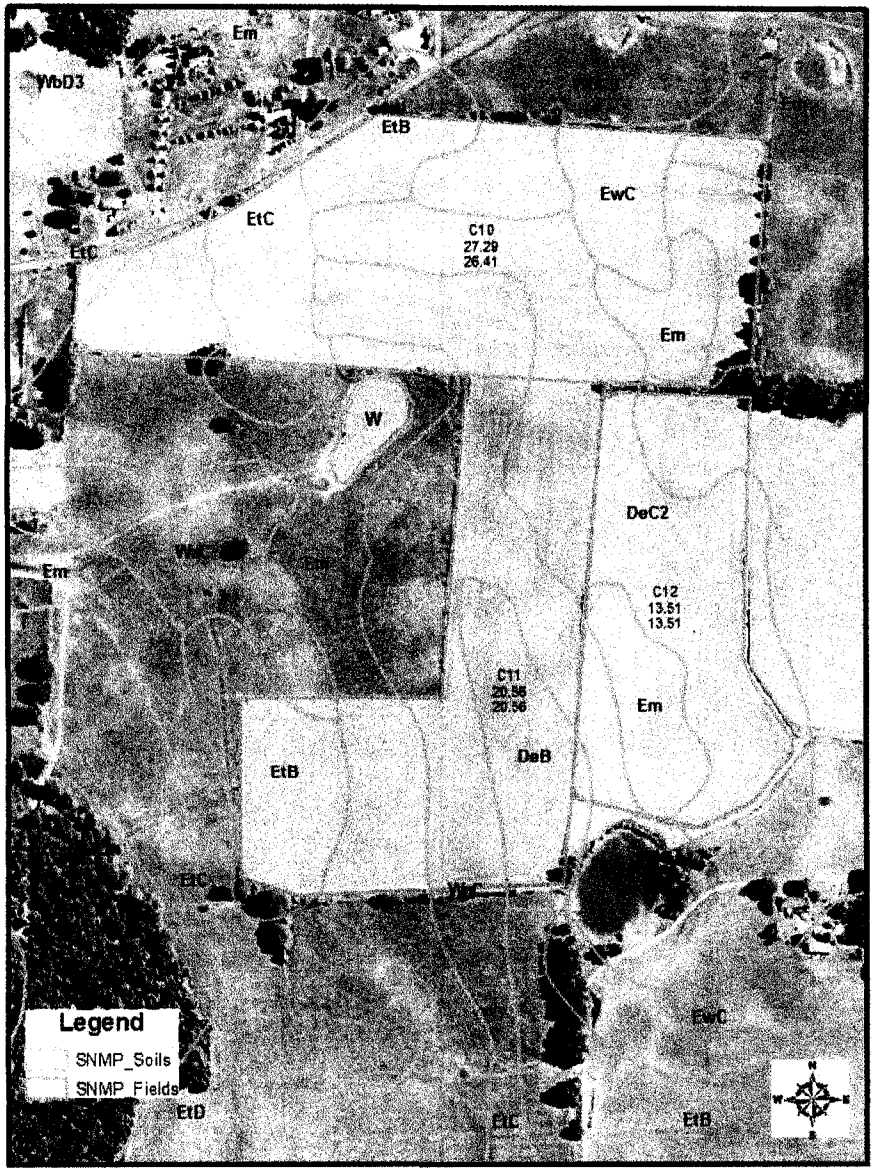
Validus Services LLC

0 245 490 980 Ft

County: White
State: Tennessee

Sparkman Land Soils 4

Date: 12/25/09



Validus Services LLC

0 245 490 980 Ft

Map Unit Description (Brief, Generated)

White County Area and Van Buren County, Tennessee

[Minor map unit components are excluded from this report]

Map unit: CnD2 - Christian cherty silt loam, 12 to 20 percent slopes, eroded

Component: Christian (100%)

The Christian component makes up 100 percent of the map unit. Slopes are 12 to 20 percent. This component is on hillslopes on plateaus. The parent material consists of clayey residuum weathered from limestone, sandstone, and shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Map unit: DeC2 - Decatur silt loam, 5 to 12 percent slopes, eroded

Component: Decatur (100%)

The Decatur component makes up 100 percent of the map unit. Slopes are 5 to 12 percent. This component is on hillslopes on plateaus. The parent material consists of clayey alluvium and/or residuum weathered from limestone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Map unit: Em - Emory silt loam

Component: Emory (100%)

The Emory component makes up 100 percent of the map unit. Slopes are 0 to 3 percent. This component is on drainageways on plateaus. The parent material consists of loamy alluvium over residuum weathered from limestone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is rarely flooded. It is not ponded. A seasonal zone of water saturation is at 66 inches during January, February, March, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 1. This soil does not meet hydric criteria.

Map unit: EwC - Etowah cherty silt loam, 5 to 12 percent slopes

Component: Etowah (100%)

The Etowah component makes up 100 percent of the map unit. Slopes are 5 to 12 percent. This component is on stream terraces on plateaus. The parent material consists of loamy alluvium and/or colluvium derived from limestone, sandstone, and shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Map unit: Ha - Hamblen silt loam

Component: Hamblen (100%)

The Hamblen component makes up 100 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on plateaus. The parent material consists of loamy alluvium derived from limestone, sandstone, and shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 17 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Map unit: WaC - Waynesboro loam, 5 to 12 percent slopes

Component: Waynesboro (100%)

The Waynesboro component makes up 100 percent of the map unit. Slopes are 5 to 12 percent. This component is on stream terraces on plateaus. The parent material consists of clayey alluvium derived from interbedded sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Map unit: WbC3 - Waynesboro clay loam, 5 to 12 percent slopes, severely eroded

Component: Waynesboro (100%)

The Waynesboro component makes up 100 percent of the map unit. Slopes are 5 to 12 percent. This component is on stream terraces on plateaus. The parent material consists of clayey alluvium derived from interbedded sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 0 percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

5.2. Predicted Soil Erosion

Field	Predominant Soil Type	Slope (%)	Plan Avg. Soil Loss (Ton/Ac/Yr)
1	CnD2 (Christian GR-SIL)	16.0	8.8
L1	WaC (Waynesboro SIL)	8.5	3.6
L2	WaC (Waynesboro SIL)	8.5	3.6
L3	CnD2 (Christian GR-SIL)	16.0	8.8
D1	WaC2 (Waynesboro SIL)	8.5	3.6
CP1	Ha (Hamblen SIL)	1.0	0.6
C1	Em (Emory SIL)	1.5	1.5
C2	WbC3 (Waynesboro SICL)	6.0	4.1
C3	WbC3 (Waynesboro SICL)	6.0	4.0
C4	Ha (Hamblen SIL)	1.0	1.0
C5	Em (Emory SIL)	1.5	1.5
H1	WaC (Waynesboro SIL)	8.5	2.5
C10	WaC (Waynesboro SIL)	7.0	4.7

Field	Predominant Soil Type	Slope (%)	Plan Avg. Soil Loss (Ton/Ac/Yr)
C11	WaC (Waynesboro SIL)	7.0	4.7
C12	DeC2 (Decatur SIL)	7.0	5.3
C6	DeC2 (Decatur SIL)	7.0	4.8
C7	DeC2 (Decatur SIL)	6.0	4.3
C8	EwC (Etowah GR-SIL)	6.0	5.0
C9	WaC (Waynesboro SIL)	6.0	3.9

Field	Crop Year	Starting Date (mm/dd/yyyy)	Ending Date (mm/dd/yyyy)	Soil Loss (Ton/Ac)	Primary Crop
1	2011	11/6/2010	11/5/2011	8.8	Fescue pasture maint
	2012	11/6/2011	11/5/2012	8.8	Fescue pasture maint
	2013	11/6/2012	11/5/2013	8.8	Fescue pasture maint
	2014	11/6/2013	11/5/2014	8.8	Fescue pasture maint
	2015	11/6/2014	11/5/2015	8.8	Fescue pasture maint
L1	2011	11/6/2010	11/5/2011	3.6	Fescue pasture new
	2012	11/6/2011	11/5/2012	3.6	Fescue pasture new
	2013	11/6/2012	11/5/2013	3.6	Fescue pasture new
	2014	11/6/2013	11/5/2014	3.6	Fescue pasture new
	2015	11/6/2014	11/5/2015	3.6	Fescue pasture new
L2	2011	11/6/2010	11/5/2011	3.6	Fescue pasture new
	2012	11/6/2011	11/5/2012	3.6	Fescue pasture new
	2013	11/6/2012	11/5/2013	3.6	Fescue pasture new
	2014	11/6/2013	11/5/2014	3.6	Fescue pasture new
	2015	11/6/2014	11/5/2015	3.6	Fescue pasture new
L3	2011	11/6/2010	11/5/2011	8.8	Fescue pasture new
	2012	11/6/2011	11/5/2012	8.8	Fescue pasture new
	2013	11/6/2012	11/5/2013	8.8	Fescue pasture new
	2014	11/6/2013	11/5/2014	8.8	Fescue pasture new
	2015	11/6/2014	11/5/2015	8.8	Fescue pasture new
D1	2011	11/6/2010	11/5/2011	3.6	Fescue pasture maint

Field	Crop Year	Starting Date (mm/dd/yyyy)	Ending Date (mm/dd/yyyy)	Soil Loss (Ton/Ac)	Primary Crop
	2012	11/6/2011	11/5/2012	3.6	Fescue pasture maint
	2013	11/6/2012	11/5/2013	3.6	Fescue pasture maint
	2014	11/6/2013	11/5/2014	3.6	Fescue pasture maint
	2015	11/6/2014	11/5/2015	3.6	Fescue pasture maint
CP1	2011	11/6/2010	11/5/2011	0.6	Fescue pasture maint
	2012	11/6/2011	11/5/2012	0.6	Fescue pasture maint
	2013	11/6/2012	11/5/2013	0.6	Fescue pasture maint
	2014	11/6/2013	11/5/2014	0.6	Fescue pasture maint
	2015	11/6/2014	11/5/2015	0.6	Fescue pasture maint
C1	2011	9/2/2010	9/1/2011	1.5	Corn silage
	2012	9/2/2011	9/1/2012	1.5	Corn silage
	2013	9/2/2012	9/1/2013	1.5	Corn silage
	2014	9/2/2013	9/1/2014	1.5	Corn silage
	2015	9/2/2014	9/1/2015	1.5	Corn silage
C2	2011	9/2/2010	9/1/2011	4.1	Corn silage
	2012	9/2/2011	9/1/2012	4.1	Corn grain
	2013	9/2/2012	9/1/2013	4.0	Corn silage
	2014	9/2/2013	9/1/2014	4.0	Corn silage
	2015	9/2/2014	9/1/2015	4.1	Corn silage
C3	2011	9/2/2010	9/1/2011	4.1	Corn silage
	2012	9/2/2011	9/1/2012	4.0	Corn silage
	2013	9/2/2012	9/1/2013	4.0	Corn silage
	2014	9/2/2013	9/1/2014	4.0	Corn silage
	2015	9/2/2014	9/1/2015	4.1	Corn silage
C4	2011	9/2/2010	9/1/2011	1.0	Corn silage
	2012	9/2/2011	9/1/2012	1.0	Corn silage
	2013	9/2/2012	9/1/2013	1.0	Corn silage
	2014	9/2/2013	9/1/2014	1.0	Corn silage
	2015	9/2/2014	9/1/2015	1.0	Corn silage
C5	2011	9/2/2010	9/1/2011	1.5	Corn silage
	2012	9/2/2011	9/1/2012	1.5	Corn silage

Field	Crop Year	Starting Date (mm/dd/yyyy)	Ending Date (mm/dd/yyyy)	Soil Loss (Ton/Ac)	Primary Crop
	2013	9/2/2012	9/1/2013	1.5	Corn silage
	2014	9/2/2013	9/1/2014	1.5	Corn silage
	2015	9/2/2014	9/1/2015	1.5	Corn silage
H1	2011	10/2/2010	10/1/2011	2.5	Fescue hay maint
	2012	10/2/2011	10/1/2012	2.5	Fescue hay maint
	2013	10/2/2012	10/1/2013	2.5	Fescue hay maint
	2014	10/2/2013	10/1/2014	2.5	Fescue hay maint
	2015	10/2/2014	10/1/2015	2.5	Fescue hay maint
C10	2011	9/2/2010	9/1/2011	4.7	Corn silage
	2012	9/2/2011	9/1/2012	4.6	Corn silage
	2013	9/2/2012	9/1/2013	4.7	Corn silage
	2014	9/2/2013	9/1/2014	4.7	Corn silage
	2015	9/2/2014	9/1/2015	4.7	Corn silage
C11	2011	9/2/2010	9/1/2011	4.8	Corn grain
	2012	9/2/2011	9/1/2012	4.6	Corn silage
	2013	9/2/2012	9/1/2013	4.7	Corn silage
	2014	9/2/2013	9/1/2014	4.7	Corn silage
	2015	9/2/2014	9/1/2015	4.7	Corn silage
C12	2011	9/2/2010	9/1/2011	5.4	Corn silage
	2012	9/2/2011	9/1/2012	5.3	Corn silage
	2013	9/2/2012	9/1/2013	5.3	Corn silage
	2014	9/2/2013	9/1/2014	5.2	Corn silage
	2015	9/2/2014	9/1/2015	5.3	Corn silage
C6	2011	9/2/2010	9/1/2011	4.9	Corn silage
	2012	9/2/2011	9/1/2012	4.9	Corn silage
	2013	9/2/2012	9/1/2013	4.8	Corn silage
	2014	9/2/2013	9/1/2014	4.8	Corn silage
	2015	9/2/2014	9/1/2015	4.7	Corn silage
C7	2011	9/2/2010	9/1/2011	4.4	Corn silage
	2012	9/2/2011	9/1/2012	4.3	Corn silage
	2013	9/2/2012	9/1/2013	4.3	Corn silage

Field	Crop Year	Starting Date (mm/dd/yyyy)	Ending Date (mm/dd/yyyy)	Soil Loss (Ton/Ac)	Primary Crop
	2014	9/2/2013	9/1/2014	4.3	Corn silage
	2015	9/2/2014	9/1/2015	4.3	Corn silage
C8	2011	9/2/2010	9/1/2011	5.1	Corn silage
	2012	9/2/2011	9/1/2012	5.0	Corn silage
	2013	9/2/2012	9/1/2013	5.0	Corn silage
	2014	9/2/2013	9/1/2014	5.0	Corn silage
	2015	9/2/2014	9/1/2015	5.0	Corn silage
C9	2011	9/2/2010	9/1/2011	3.9	Corn silage
	2012	9/2/2011	9/1/2012	3.9	Corn silage
	2013	9/2/2012	9/1/2013	3.9	Corn silage
	2014	9/2/2013	9/1/2014	3.9	Corn silage
	2015	9/2/2014	9/1/2015	3.9	Corn silage

5.3. Nitrogen and Phosphorus Risk Analysis

Risk Assessment for Potential Phosphorous Transport from Fields

The Phosphorus Index is a field-specific assessment tool used to provide a relative value of the field for potential phosphorus transport from the fields. Based on the soil test phosphorus level and the P Index value, nutrients should be land applied on a nitrogen-based, with an estimated 2P removal in harvested biomass, or P removal, or no P application. Any phosphorus application option, including a single application (banking), shall not exceed the recommended nitrogen application rate during the year of application, or not exceed the estimated nitrogen removal n harvested biomass.

Tennessee Phosphorus Index

Field	Crop Year	Site and Transport Factor	Mgmt. and Source Factor	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
1	2011	*Unable to calculate P Index. See notes for details.*				
1	2012	*Unable to calculate P Index. See notes for details.*				
1	2013	*Unable to calculate P Index. See notes for details.*				
1	2014	*Unable to calculate P Index. See notes for details.*				
1	2015	*Unable to calculate P Index. See notes for details.*				
L1	2011	*Unable to calculate P Index. See notes for details.*				
L1	2012	*Unable to calculate P Index. See notes for details.*				
L1	2013	*Unable to calculate P Index. See notes for details.*				
L1	2014	*Unable to calculate P Index. See notes for details.*				
L1	2015	*Unable to calculate P Index. See notes for details.*				
L2	2011	*Unable to calculate P Index. See notes for details.*				
L2	2012	*Unable to calculate P Index. See notes for details.*				
L2	2013	*Unable to calculate P Index. See notes for details.*				
L2	2014	*Unable to calculate P Index. See notes for details.*				
L2	2015	*Unable to calculate P Index. See notes for details.*				
L3	2011	*Unable to calculate P Index. See notes for details.*				
L3	2012	*Unable to calculate P Index. See notes for details.*				
L3	2013	*Unable to calculate P Index. See notes for details.*				
L3	2014	*Unable to calculate P Index. See notes for details.*				
L3	2015	*Unable to calculate P Index. See notes for details.*				
D1	2011	*Unable to calculate P Index. See notes for details.*				

Field	Crop Year	Site and Transport Factor	Mgmt. and Source Factor	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
D1	2012	*Unable to calculate P Index. See notes for details.*				
D1	2013	*Unable to calculate P Index. See notes for details.*				
D1	2014	*Unable to calculate P Index. See notes for details.*				
D1	2015	*Unable to calculate P Index. See notes for details.*				
CP1	2011	*Unable to calculate P Index. See notes for details.*				
CP1	2012	*Unable to calculate P Index. See notes for details.*				
CP1	2013	*Unable to calculate P Index. See notes for details.*				
CP1	2014	*Unable to calculate P Index. See notes for details.*				
CP1	2015	*Unable to calculate P Index. See notes for details.*				
C1	2011	13	24	52	312	Very High
C1	2012	13	23	52	299	High
C1	2013	13	24	52	312	Very High
C1	2014	13	23	52	299	High
C1	2015	13	23	52	299	High
C2	2011	19	27	152	513	Very High
C2	2012	19	17	152	323	Very High
C2	2013	19	27	152	513	Very High
C2	2014	19	27	152	513	Very High
C2	2015	19	28	152	532	Very High
C3	2011	19	24	76	456	Very High
C3	2012	19	24	76	456	Very High
C3	2013	19	23	76	437	Very High
C3	2014	19	23	76	437	Very High
C3	2015	19	23	76	437	Very High
C4	2011	15	28	120	420	Very High
C4	2012	15	28	120	420	Very High
C4	2013	15	37	120	555	Very High
C4	2014	15	8	120	120	Medium
C4	2015	15	27	120	405	Very High
C5	2011	13	28	104	364	Very High

Field	Crop Year	Site and Transport Factor	Mgmt. and Source Factor	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
C5	2012	13	28	104	364	Very High
C5	2013	13	36	104	468	Very High
C5	2014	13	20	104	260	High
C5	2015	13	27	104	351	Very High
H1	2011	13	4	52	52	Low
H1	2012	13	20	52	260	High
H1	2013	13	20	52	260	High
H1	2014	13	20	52	260	High
H1	2015	13	4	52	52	Low
C10	2011	19	22	76	418	Very High
C10	2012	19	24	76	456	Very High
C10	2013	19	26	76	494	Very High
C10	2014	19	24	76	456	Very High
C10	2015	19	22	76	418	Very High
C11	2011	19	8	152	152	Medium
C11	2012	19	37	152	703	Very High
C11	2013	19	22	152	418	Very High
C11	2014	19	32	152	608	Very High
C11	2015	19	8	152	152	Medium
C12	2011	19	8	152	152	Medium
C12	2012	19	27	152	513	Very High
C12	2013	19	8	152	152	Medium
C12	2014	19	29	152	551	Very High
C12	2015	19	8	152	152	Medium
C6	2011	15	4	60	60	Low
C6	2012	15	21	60	315	Very High
C6	2013	15	23	60	345	Very High
C6	2014	15	18	60	270	High
C6	2015	15	34	60	510	Very High
C7	2011	19	4	76	76	Low

Field	Crop Year	Site and Transport Factor	Mgmt. and Source Factor	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
C7	2012	19	19	76	361	Very High
C7	2013	19	23	76	437	Very High
C7	2014	19	24	76	456	Very High
C7	2015	19	24	76	456	Very High
C8	2011	19	4	76	76	Low
C8	2012	19	24	76	456	Very High
C8	2013	19	24	76	456	Very High
C8	2014	19	24	76	456	Very High
C8	2015	19	24	76	456	Very High
C9	2011	19	24	76	456	Very High
C9	2012	19	24	76	456	Very High
C9	2013	19	24	76	456	Very High
C9	2014	19	24	76	456	Very High
C9	2015	19	24	76	456	Very High

Notes:
Manure not spread on these fields so P not calculated. Field 1:Field L1:Field L2:Field L3:Field D1:Field CP1:

5.4. Additional Field Data Required by Risk Assessment Procedure

Field	Distance to Water (Feet)	Slope Length (Feet)	Buffer Width (Feet)	Tillage/Cover Type
1	1,000	80	None	Pasture/Hay
L1	1,000	100	None	Pasture/Hay
L2	1,000	100	None	Pasture/Hay
L3	1,000	80	None	Pasture/Hay
D1	1,000	100	None	Pasture/Hay
CP1	1,000	150	None	Pasture/Hay
C1	1,000	150	None	No-till w/ light to medium residues
C2	1,000	150	None	No-till w/ light to medium residues
C3	1,000	150	None	No-till w/ light to medium residues
C4	1,000	150	None	No-till w/ light to medium residues
C5	1,000	150	None	No-till w/ light to medium residues
H1	1,000	150	None	Pasture/Hay
C10	1,000	150	None	No-till w/ light to medium residues
C11	1,000	150	None	No-till w/ light to medium residues
C12	1,000	150	None	No-till w/ light to medium residues
C6	1,000	100	None	No-till w/ light to medium residues
C7	1,000	120	None	No-till w/ light to medium residues
C8	1,000	120	None	No-till w/ light to medium residues
C9	1,000	120	None	No-till w/ light to medium residues

Section 6. Nutrient Management

The goal of this section is to develop a nutrient budget for nitrogen, phosphorus, and potassium that includes all nutrient sources. From this nutrient budget, projections will be made concerning the sustainability of the plan for the entire crop sequence. In most cases, the nutrient budget is accurate for the first year only. If nutrients from sources not included in this plan are used in the first year, the nutrient budget will be revised to account for those inputs. In subsequent years considered in this plan, a nutrient budget will be developed using current soil analysis data; current manure analysis data; the actual crops to be used and their projected yields and nutrient needs and will account for nutrients from all sources. Guidance in developing a nutrient budget may be obtained from your NRCS Field Office or your University of Tennessee Cooperative Extension Service Agent. Land application procedures must be planned and implemented in a way that minimizes potential adverse impacts to the environment and public health.

If land is included in the future for application that is not under the ownership/control of the producer, appropriate agreements will be obtained.

6.1. Field Information

Field ID	Sub-field ID	Total Acres	Spread-able Acres	FSA Farm	FSA Tract	FSA Field	County	Predominant Soil Type	Slope (%)
1		22.6	22.6				White	CnD2 (Christian GR-SIL)	
L1		3.4	3.4				White	WaC (Waynesboro SIL)	
L2		4.7	4.7				White	WaC (Waynesboro SIL)	
L3		7.2	7.2				White	CnD2 (Christian GR-SIL)	
D1		4.1	4.1				White	WaC2 (Waynesboro SIL)	
CP1		14.5	14.1				White	Ha (Hamblen SIL)	
C1		26.0	26.0				White	Em (Emory SIL)	
C2		18.1	18.1				White	WbC3 (Waynesboro SICL)	6.0
C3		5.2	5.2				White	WbC3 (Waynesboro SICL)	6.0
C4		13.6	13.6				White	Ha (Hamblen SIL)	
C5		25.4	25.4				White	Em (Emory SIL)	
H1		16.6	16.1				White	WaC (Waynesboro SIL)	
C10		27.3	26.4				White	WaC (Waynesboro SIL)	7.0
C11		20.6	20.6				White	WaC (Waynesboro SIL)	7.0
C12		13.5	13.5				White	DeC2 (Decatur SIL)	7.0
C6		20.4	19.9				White	DeC2 (Decatur SIL)	7.0
C7		30.2	28.7				White	DeC2 (Decatur SIL)	6.0
C8		10.5	9.6				White	EwC (Etowah GR-SIL)	6.0
C9		12.5	12.5				White	WaC (Waynesboro SIL)	6.0

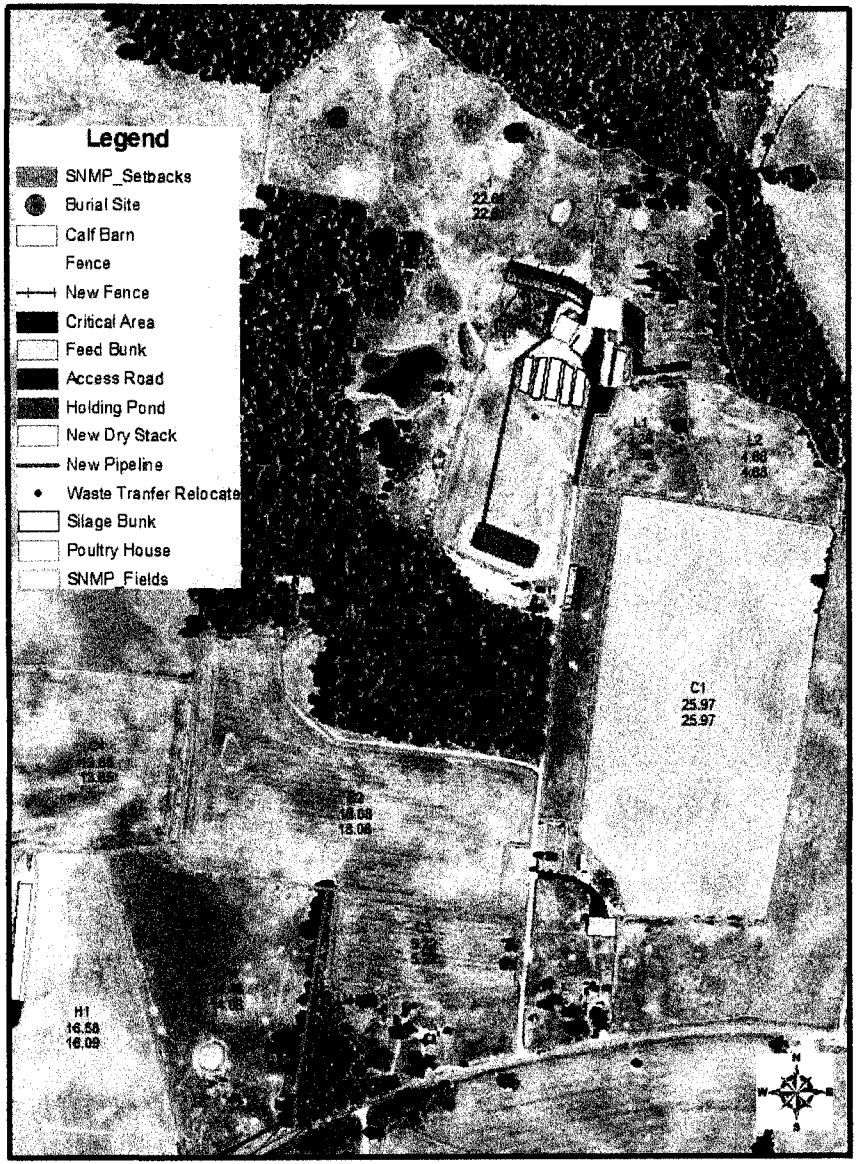
Maps have fields numbered. They also show total acres in a field and the spreadable acres in each field. The top number is the field number, the middle number is the total acres in the field and the bottom number is the spreadable acres in the field.

H-1----------Field Number
16.58----------Total acres in the field
16.09----------Total spreadable acres in the field

County White
State Tennessee

Sparkman Land Application 1

Date 12/25/09



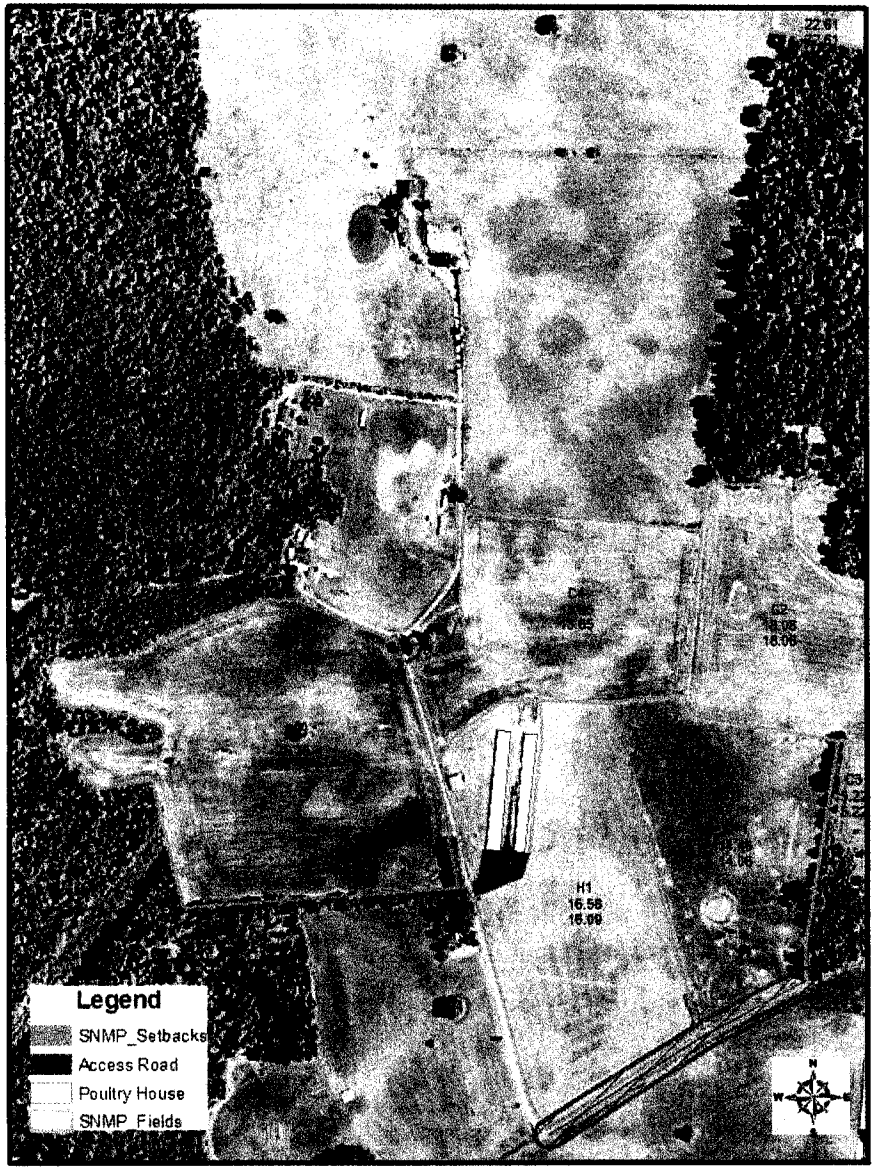
Validus Services LLC

0 285 570 1,140 Feet

County White
State Tennessee

Sparkman Land Application 2

Date 12/25/09



Validus Services LLC

0 285 570 1,140 Feet

County White
State Tennessee

Sparkman Land Application 3

Date 12/25/09

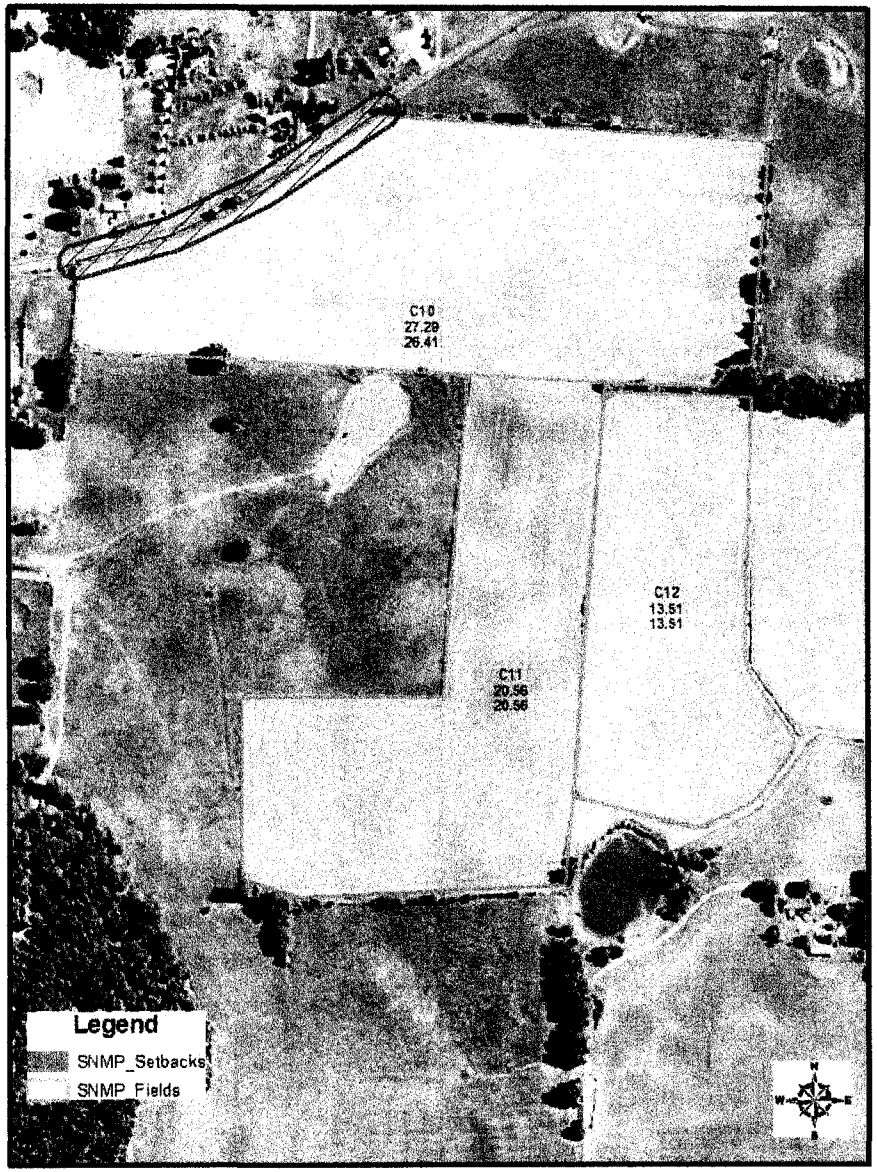
Validus Services LLC

0 245 490 980 Fe

County: White
State: Tennessee

Sparkman Land Application 4

Date: 12/25/09



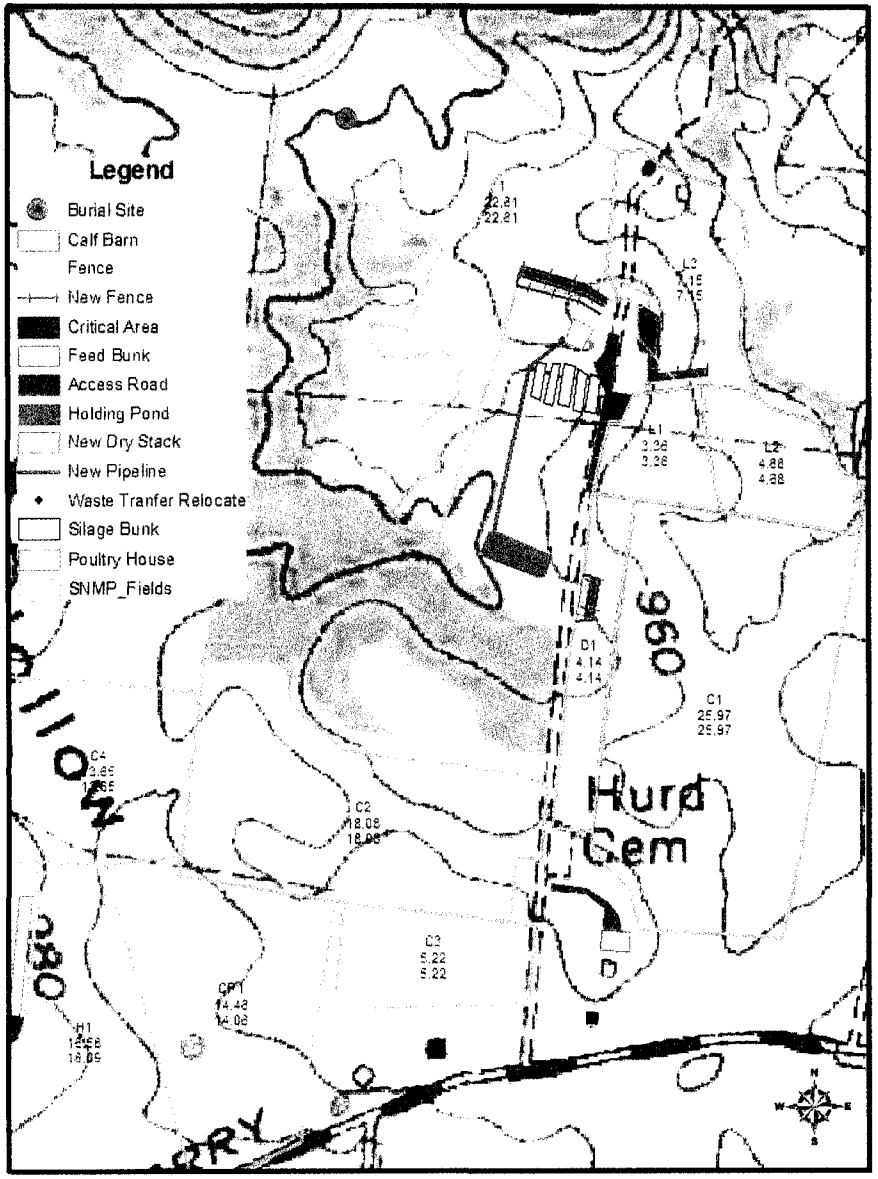
Validus Services LLC

0 245 490 980 Ft

County White
State Tennessee

Sparkman Topo 1

Date 12/25/09



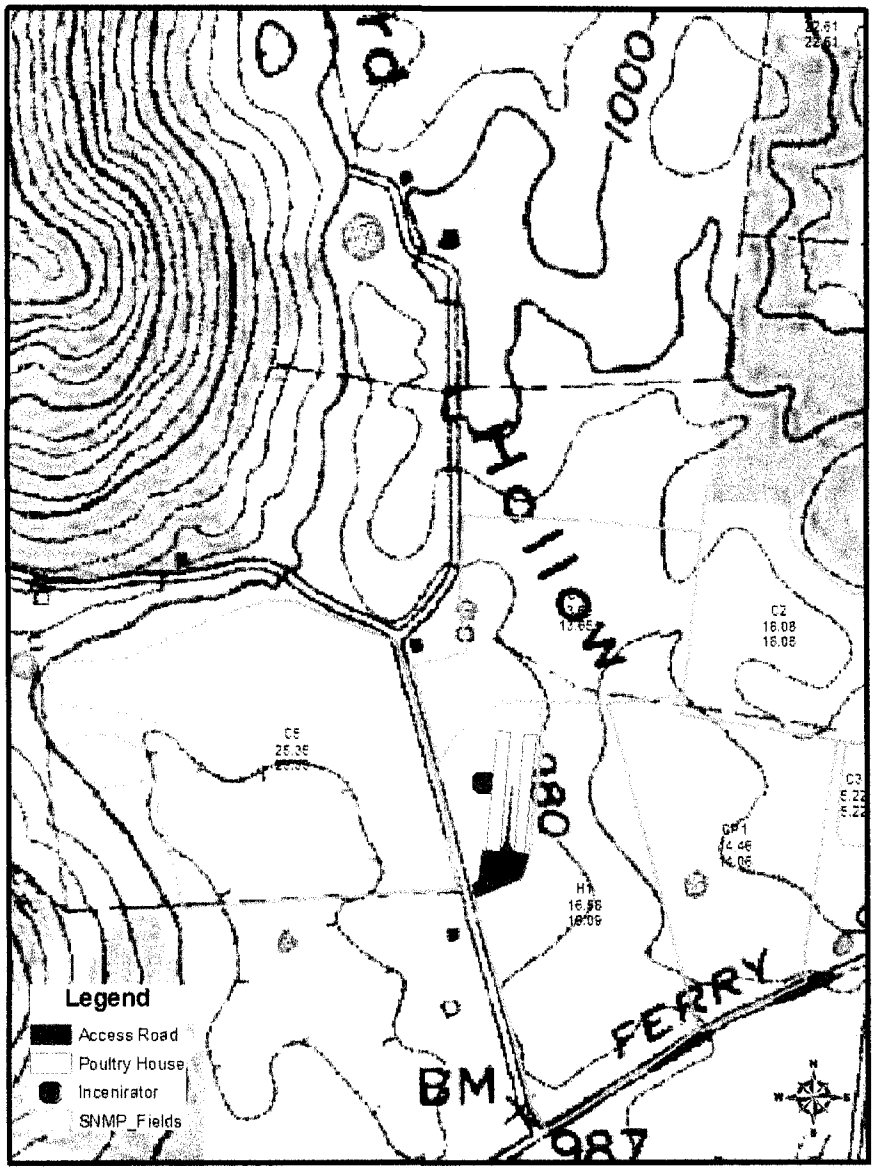
Validus Services LLC

0 285 570 1,140 Feet

County White
State Tennessee

Sparkman Topo 2

Date 12/25/09



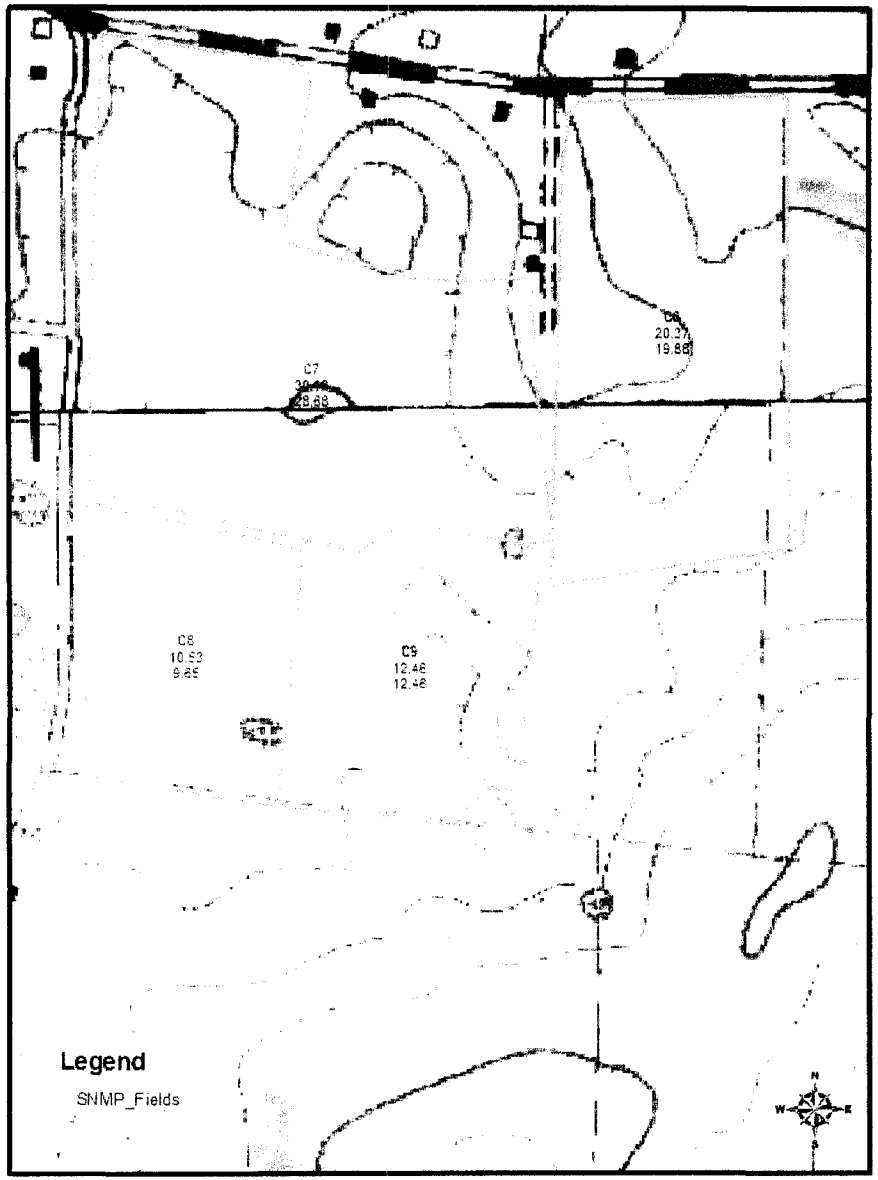
Validus Services LLC

0 285 570 1 140 Feet

County White
State Tennessee

Sparkman Topo 3

Date 12/25/09



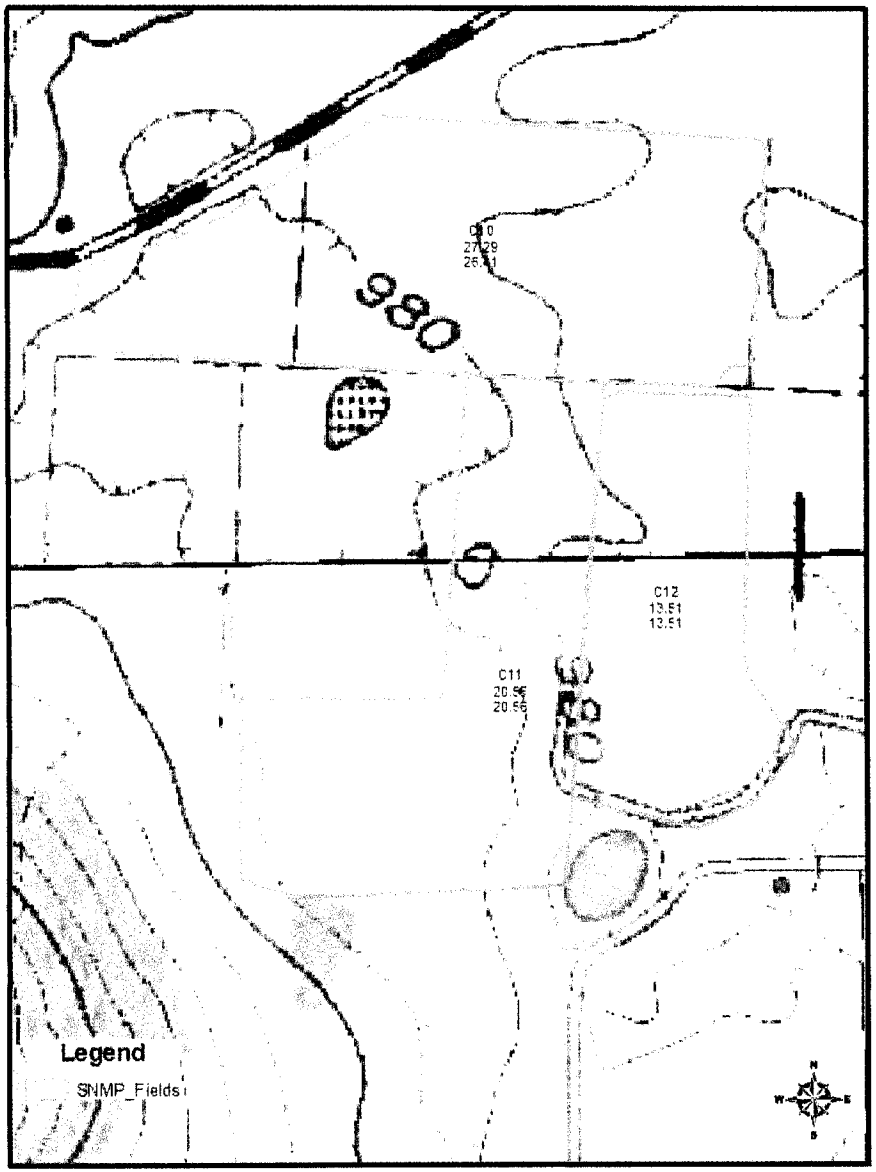
Validus Services LLC

0 245 490 980 Fe

County: White
State: Tennessee

Sparkman Topo 4

Date: 12/25/09



Validus Services LLC

0 245 490 980 Feet

6.2. Manure Application Setback Distances

Setback Requirements: Class II CAFO

Feature	Setback Criteria	Setback Distance (Feet)
Streams	Applied upgradient, no permanent or insufficient vegetated setback	100
Streams	New operation, near high quality stream	60
Surface waters	Applied upgradient, no permanent or insufficient vegetated setback	100
Open tile line inlet structures	Applied upgradient, no permanent or insufficient vegetated setback	100
Sinkholes	Applied upgradient, no permanent or insufficient vegetated setback	100
Agricultural well heads	Applied upgradient, no permanent or insufficient vegetated setback	100
Other conduits to surface waters	Applied upgradient, no permanent or insufficient vegetated setback	100
Potable well, public or private	Application upgradient of feature	300
Potable well, public or private	Application down-gradient of feature	150

Source: TN DEQ Rule 1200-4-5-.14(17)(d) (http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf)

Setback Requirements: NRCS Standard

Feature	Setback Criteria	Setback Distance (Feet)
Well	Application upgradient of feature	300
Well	Application down-gradient of feature	150
Waterbody	Predominant slope <5% with good vegetation	30
Waterbody	Predominant slope 5 to 8% with good vegetation	50
Waterbody	Predominant slope >8%	100
Waterbody	Poor vegetation	100
Public road	All applications	50
Dwelling (other than producer)	All applications	300
Public use area	All applications	300
Property line	Application upgradient of feature	30

Source: Nutrient Management Standard 590 (http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc)

6.3. Soil Test Data

Field	Test Year	OM (%)	P Test Used	P	K	Mg	Ca	Units	Soil pH	Buffer pH	CEC (meq/ 100g)
1	2009							lbs/a			
L1	2009							lbs/a			
L2	2009							lbs/a			
L3	2009							lbs/a			
D1	2009							lbs/a			
CP1	2009							lbs/a			
C1	2009	2.1	Mehlich-1	136	228	106	1,492	lbs/a	5.7	7.7	7.3
C2	2009	2.2	Mehlich-1	376	552	298	2,328	lbs/a	6.8	7.7	10.7
C3	2009	5.4	Mehlich-1	194	128	330	2,362	lbs/a	6.1	7.7	10.2
C4	2009	2.1	Mehlich-1	436	446	218	2,296	lbs/a	6.4	7.7	9.8
C5	2009	2.8	Mehlich-1	654	534	238	2,882	lbs/a	6.0	7.7	11.2
H1	2009	4.1	Mehlich-1	94	108	196	2,552	lbs/a	6.4	7.8	9.3
C10	2009	3.1	Mehlich-1	233	328	321	2,327	lbs/a	5.9	7.6	10.8
C11	2009	2.5	Mehlich-1	247	378	245	2,125	lbs/a	5.8	7.7	9.1
C12	2009	2.4	Mehlich-1	452	406	262	2,150	lbs/a	5.8	6.8	9.7
C6	2009	2.4	Mehlich-1	144	280	324	2,008	lbs/a	6.1	7.5	107.0
C7	2009	2.7	Mehlich-1	194	354	288	2,534	lbs/a	6.9	7.6	11.4
C8	2009	2.4	Mehlich-1	196	338	226	2,854	lbs/a	6.8	7.7	11.2
C9	2009	2.2	Mehlich-1	100	176	190	2,348	lbs/a	6.0	7.6	10.3

6.4. Manure Nutrient Analysis

Manure Source	Dry Matter (%)	Total N	NH_4-N	Total P_2O_5	Total K_2O	Avail. P_2O_5	Avail. K_2O	Units	Analysis Source and Date
Holding Pond		26.4		9.8	13.3	9.8	13.3	Lb/1000Gal	A&L Analytical Laboratories, Inc
Dry Stack		75.7		46.9	45.9	46.9	45.9	Lb/Ton	A&L Analytical Laboratories, Inc
Bunk		75.7		46.9	45.9	46.9	45.9	Lb/Ton	A&L Analytical Laboratories, Inc
Calf Barn		75.7		46.9	45.9	46.9	45.9	Lb/Ton	A&L Analytical Laboratories, Inc
Pasture		6.1	1.2	4.5	6.4	4.5	6.4	Lb/Ton	MMP Estimate
Poultry House 1		32.8		64.4	24.7	64.4	24.7	Lb/Ton	A&L Analytical Laboratories, Inc
Poultry House 2		26.4		47.8	21.6	47.8	21.6	Lb/Ton	A&L Analytical Laboratories, Inc

(1) Entered analysis may be the average of several individual analyses.

(2) Tennessee assumes that 100% of manure phosphorus and 100% of manure potassium is crop available. First-year per-acre nitrogen availability for individual manure applications is given in the Planned Nutrient Applications table. For more information about nitrogen availability in Tennessee, see "Manure Application Management," Tables 3 and 4, Tennessee Extension, PB1510, 2/94 (http://wastemgmt.ag.utk.edu/ExtensionProjects/extension_publications.htm).

6.5. Planned Crops and Fertilizer Recommendations

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
1	2011	Fescue pasture maint	3.0 Ton	120			114	54	156	
1	2012	Fescue pasture maint	3.0 Ton	120			114	54	156	
1	2013	Fescue pasture maint	3.0 Ton	120			114	54	156	
1	2014	Fescue pasture maint	3.0 Ton	120			114	54	156	
1	2015	Fescue pasture maint	3.0 Ton	120			114	54	156	
L1	2011	Fescue pasture new	3.0 Ton	30			114	54	156	
L1	2012	Fescue pasture new	3.0 Ton	30			114	54	156	
L1	2013	Fescue pasture new	3.0 Ton	30			114	54	156	
L1	2014	Fescue pasture new	3.0 Ton	30			114	54	156	
L1	2015	Fescue pasture new	3.0 Ton	30			114	54	156	
L2	2011	Fescue pasture new	3.0 Ton	30			114	54	156	
L2	2012	Fescue pasture new	3.0 Ton	30			114	54	156	
L2	2013	Fescue pasture new	3.0 Ton	30			114	54	156	
L2	2014	Fescue pasture new	3.0 Ton	30			114	54	156	
L2	2015	Fescue pasture new	3.0 Ton	30			114	54	156	
L3	2011	Fescue pasture new	3.0 Ton	30			114	54	156	
L3	2012	Fescue pasture new	3.0 Ton	30			114	54	156	
L3	2013	Fescue pasture new	3.0 Ton	30			114	54	156	
L3	2014	Fescue pasture new	3.0 Ton	30			114	54	156	
L3	2015	Fescue pasture new	3.0 Ton	30			114	54	156	
D1	2011	Fescue pasture maint	3.0 Ton	120			114	54	156	
D1	2012	Fescue pasture maint	3.0 Ton	120			114	54	156	
D1	2013	Fescue pasture maint	3.0 Ton	120			114	54	156	
D1	2014	Fescue pasture maint	3.0 Ton	120			114	54	156	
D1	2015	Fescue pasture maint	3.0 Ton	120			114	54	156	
CP1	2011	Fescue pasture maint	3.0 Ton	120			114	54	156	
CP1	2012	Fescue pasture maint	3.0 Ton	120			114	54	156	
CP1	2013	Fescue pasture maint	3.0 Ton	120			114	54	156	
CP1	2014	Fescue pasture maint	3.0 Ton	120			114	54	156	

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
CP1	2015	Fescue pasture maint	3.0 Ton	120			114	54	156	
C1	2011	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C1	2011	Corn silage	20.0 Ton	150	0	0	166	72	166	
C1	2012	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C1	2012	Corn silage	20.0 Ton	150	0	0	166	72	166	
C1	2013	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C1	2013	Corn silage	20.0 Ton	150	0	0	166	72	166	
C1	2014	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C1	2014	Corn silage	20.0 Ton	150	0	0	166	72	166	
C1	2015	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C1	2015	Corn silage	20.0 Ton	150	0	0	166	72	166	
C2	2011	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C2	2011	Corn silage	20.0 Ton	150	0	0	166	72	166	
C2	2012	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C2	2012	Corn grain	20.0 Bu	120	0	0	15	9	6	
C2	2013	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C2	2013	Corn silage	20.0 Ton	150	0	0	166	72	166	
C2	2014	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C2	2014	Corn silage	20.0 Ton	150	0	0	166	72	166	
C2	2015	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C2	2015	Corn silage	20.0 Ton	150	0	0	166	72	166	
C3	2011	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	40	84	30	90	
C3	2011	Corn silage	20.0 Ton	150	0	160	166	72	166	
C3	2012	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	40	84	30	90	
C3	2012	Corn silage	20.0 Ton	150	0	160	166	72	166	

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
C3	2013	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	40	84	30	90	
C3	2013	Corn silage	20.0 Ton	150	0	160	166	72	166	
C3	2014	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	40	84	30	90	
C3	2014	Corn silage	20.0 Ton	150	0	160	166	72	166	
C3	2015	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	40	84	30	90	
C3	2015	Corn silage	20.0 Ton	150	0	160	166	72	166	
C4	2011	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C4	2011	Corn silage	20.0 Ton	150	0	0	166	72	166	
C4	2012	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C4	2012	Corn silage	20.0 Ton	150	0	0	166	72	166	
C4	2013	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C4	2013	Corn silage	20.0 Ton	150	0	0	166	72	166	
C4	2014	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C4	2014	Corn silage	20.0 Ton	150	0	0	166	72	166	
C4	2015	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C4	2015	Corn silage	20.0 Ton	150	0	0	166	72	166	
C5	2011	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C5	2011	Corn silage	20.0 Ton	150	0	0	166	72	166	
C5	2012	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C5	2012	Corn silage	20.0 Ton	150	0	0	166	72	166	
C5	2013	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C5	2013	Corn silage	20.0 Ton	150	0	0	166	72	166	
C5	2014	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C5	2014	Corn silage	20.0 Ton	150	0	0	166	72	166	
C5	2015	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
C5	2015	Corn silage	20.0 Ton	150	0	0	166	72	166	
H1	2011	Fescue hay maint	3.0 Ton	105	0	30	114	54	156	
H1	2012	Fescue hay maint	3.0 Ton	105	0	30	114	54	156	
H1	2013	Fescue hay maint	3.0 Ton	105	0	30	114	54	156	
H1	2014	Fescue hay maint	3.0 Ton	105	0	30	114	54	156	
H1	2015	Fescue hay maint	3.0 Ton	105	0	30	114	54	156	
C10	2011	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C10	2011	Corn silage	20.0 Ton	150	0	0	166	72	166	
C10	2012	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C10	2012	Corn silage	20.0 Ton	150	0	0	166	72	166	
C10	2013	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C10	2013	Corn silage	20.0 Ton	150	0	0	166	72	166	
C10	2014	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C10	2014	Corn silage	20.0 Ton	150	0	0	166	72	166	
C10	2015	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C10	2015	Corn silage	20.0 Ton	150	0	0	166	72	166	
C11	2011	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C11	2011	Corn grain	20.0 Bu	120	0	0	15	9	6	
C11	2012	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C11	2012	Corn silage	20.0 Ton	150	0	0	166	72	166	
C11	2013	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C11	2013	Corn silage	20.0 Ton	150	0	0	166	72	166	
C11	2014	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C11	2014	Corn silage	20.0 Ton	150	0	0	166	72	166	
C11	2015	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C11	2015	Corn silage	20.0 Ton	150	0	0	166	72	166	

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
C12	2011	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C12	2011	Corn silage	20.0 Ton	150	0	0	166	72	166	
C12	2012	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C12	2012	Corn silage	20.0 Ton	150	0	0	166	72	166	
C12	2013	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C12	2013	Corn silage	20.0 Ton	150	0	0	166	72	166	
C12	2014	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C12	2014	Corn silage	20.0 Ton	150	0	0	166	72	166	
C12	2015	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C12	2015	Corn silage	20.0 Ton	150	0	0	166	72	166	
C6	2011	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C6	2011	Corn silage	20.0 Ton	150	0	0	166	72	166	
C6	2012	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C6	2012	Corn silage	20.0 Ton	150	0	0	166	72	166	
C6	2013	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C6	2013	Corn silage	20.0 Ton	150	0	0	166	72	166	
C6	2014	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C6	2014	Corn silage	20.0 Ton	150	0	0	166	72	166	
C6	2015	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C6	2015	Corn silage	20.0 Ton	150	0	0	166	72	166	
C7	2011	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C7	2011	Corn silage	20.0 Ton	150	0	0	166	72	166	
C7	2012	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C7	2012	Corn silage	20.0 Ton	150	0	0	166	72	166	
C7	2013	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
C7	2013	Corn silage	20.0 Ton	150	0	0	166	72	166	
C7	2014	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C7	2014	Corn silage	20.0 Ton	150	0	0	166	72	166	
C7	2015	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C7	2015	Corn silage	20.0 Ton	150	0	0	166	72	166	
C8	2011	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C8	2011	Corn silage	20.0 Ton	150	0	0	166	72	166	
C8	2012	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C8	2012	Corn silage	20.0 Ton	150	0	0	166	72	166	
C8	2013	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C8	2013	Corn silage	20.0 Ton	150	0	0	166	72	166	
C8	2014	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C8	2014	Corn silage	20.0 Ton	150	0	0	166	72	166	
C8	2015	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C8	2015	Corn silage	20.0 Ton	150	0	0	166	72	166	
C9	2011	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C9	2011	Corn silage	20.0 Ton	150	0	0	166	72	166	
C9	2012	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C9	2012	Corn silage	20.0 Ton	150	0	0	166	72	166	
C9	2013	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C9	2013	Corn silage	20.0 Ton	150	0	0	166	72	166	
C9	2014	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C9	2014	Corn silage	20.0 Ton	150	0	0	166	72	166	
C9	2015	Sm gr/ryegrass spring hay*	3.0 Ton	165	0	0	84	30	90	
C9	2015	Corn silage	20.0 Ton	150	0	0	166	72	166	

* Unharvested cover crop or first crop in double-crop system.

[a] Custom fertilizer recommendation.

All crop removal and fertilizer recommendations data based UT PSS 185

6.6. Manure Application Planning Calendar – November 2010 through October 2011

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2011 Crop (Prev. Primary Crop)	Nov '10	Dec '10	Jan '11	Feb '11	Mar '11	Apr '11	May '11	Jun '11	Jul '11	Aug '11	Sep '11	Oct '11
1	22.6	0.0	Christian GR-SIL (CnD2 12-20%)	Fescue pasture maint (Fescue pasture maint)												
L1	3.4	0.0	Waynesboro SIL (WaC 5-12%)	Fescue pasture new (Fescue pasture new)												
L2	4.7	0.0	Waynesboro SIL (WaC 5-12%)	Fescue pasture new (Fescue pasture new)												
L3	7.2	0.0	Christian GR-SIL (CnD2 12-20%)	Fescue pasture new (Fescue pasture new)												
D1	4.1	0.0	Waynesboro SIL (WaC2 5-12%)	Fescue pasture maint (Fescue pasture maint)												
CP1	14.5	0.0	Hamblen SIL (Ha 0-2%)	Fescue pasture maint (Fescue pasture maint)												
C1	26.0	26.0	Emory SIL (Em 0-3%)	Corn silage (Corn silage)					78.0						76.5	
C2	18.1	18.1	Waynesboro SICL (WbC3 5-12%)	Corn silage (Corn grain)						25.7					2.1	
C3	5.2	5.2	Waynesboro SICL (WbC3 5-12%)	Corn silage (Corn silage)					15.7						15.4	
C4	13.6	13.6	Hamblen SIL (Ha 0-2%)	Corn silage (Corn silage)					41.0							
C5	25.4	25.4	Emory SIL (Em 0-3%)	Corn silage (Corn silage)					76.1							
H1	16.6	16.1	Waynesboro SIL (WaC 5-12%)	Fescue hay maint (Fescue hay maint)												
C10	27.3	26.4	Waynesboro SIL (WaC 5-12%)	Corn silage (Corn silage)						3.9					78.0	
C11	20.6	20.6	Waynesboro SIL (WaC 5-12%)	Corn grain (Corn silage)											15.7	3.2
C12	13.5	13.5	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)											40.6	
C6	20.4	19.9	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)												
C7	30.2	28.7	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)												2.5
C8	10.5	9.6	Etowah GR-SIL (EwC 5-12%)	Corn silage (Corn silage)												
C9	12.5	12.5	Waynesboro SIL (WaC 5-12%)	Corn silage (Corn silage)					16.0	21.5						
Total	*296.1*	*235.5*							*226.8*	*51.1*					*228.3*	*5.7*

	No. indicates total loads "X" indicates other manure apps

Manure Application Planning Calendar – November 2011 through October 2012

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2012 Crop (Prev. Primary Crop)	Nov '11	Dec '11	Jan '12	Feb '12	Mar '12	Apr '12	May '12	Jun '12	Jul '12	Aug '12	Sep '12	Oct '12
1	22.6	0.0	Christian GR-SIL (CnD2 12-20%)	Fescue pasture maint (Fescue pasture maint)												
L1	3.4	0.0	Waynesboro SIL (WaC 5-12%)	Fescue pasture new (Fescue pasture new)												
L2	4.7	0.0	Waynesboro SIL (WaC 5-12%)	Fescue pasture new (Fescue pasture new)												
L3	7.2	0.0	Christian GR-SIL (CnD2 12-20%)	Fescue pasture new (Fescue pasture new)												
D1	4.1	0.0	Waynesboro SIL (WaC2 5-12%)	Fescue pasture maint (Fescue pasture maint)												
CP1	14.5	0.0	Hamblen SIL (Ha 0-2%)	Fescue pasture maint (Fescue pasture maint)												
C1	26.0	26.0	Emory SIL (Em 0-3%)	Corn silage (Corn silage)												
C2	18.1	18.1	Waynesboro SICL (WbC3 5-12%)	Corn grain (Corn silage)											54.3	
C3	5.2	5.2	Waynesboro SICL (WbC3 5-12%)	Corn silage (Corn silage)					0.1						15.7	
C4	13.6	13.6	Hamblen SIL (Ha 0-2%)	Corn silage (Corn silage)					41.0						12.4	2.0
C5	25.4	25.4	Emory SIL (Em 0-3%)	Corn silage (Corn silage)						76.1						3.3
H1	16.6	16.1	Waynesboro SIL (WaC 5-12%)	Fescue hay maint (Fescue hay maint)												
C10	27.3	26.4	Waynesboro SIL (WaC 5-12%)	Corn silage (Corn silage)						1.3						
C11	20.6	20.6	Waynesboro SIL (WaC 5-12%)	Corn silage (Corn grain)						46.1						
C12	13.5	13.5	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)												
C6	20.4	19.9	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)						40.0					59.7	
C7	30.2	28.7	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)											86.1	
C8	10.5	9.6	Etowah GR-SIL (EwC 5-12%)	Corn silage (Corn silage)						29.0						
C9	12.5	12.5	Waynesboro SIL (WaC 5-12%)	Corn silage (Corn silage)						37.4						
Total	*296.1*	*235.5*							*41.1*	*255.7*					*228.2*	*5.3*

	No. indicates total loads "X" indicates other manure apps

Manure Application Planning Calendar – November 2012 through October 2013

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2013 Crop (Prev. Primary Crop)	Nov '12	Dec '12	Jan '13	Feb '13	Mar '13	Apr '13	May '13	Jun '13	Jul '13	Aug '13	Sep '13	Oct '13
1	22.6	0.0	Christian GR-SIL (CnD2 12-20%)	Fescue pasture maint (Fescue pasture maint)												
L1	3.4	0.0	Waynesboro SIL (WaC 5-12%)	Fescue pasture new (Fescue pasture new)												
L2	4.7	0.0	Waynesboro SIL (WaC 5-12%)	Fescue pasture new (Fescue pasture new)												
L3	7.2	0.0	Christian GR-SIL (CnD2 12-20%)	Fescue pasture new (Fescue pasture new)												
D1	4.1	0.0	Waynesboro SIL (WaC2 5-12%)	Fescue pasture maint (Fescue pasture maint)												
CP1	14.5	0.0	Hamblen SIL (Ha 0-2%)	Fescue pasture maint (Fescue pasture maint)												
C1	26.0	26.0	Emory SIL (Em 0-3%)	Corn silage (Corn silage)					78.0						78.0	
C2	18.1	18.1	Waynesboro SICL (WbC3 5-12%)	Corn silage (Corn grain)											54.3	
C3	5.2	5.2	Waynesboro SICL (WbC3 5-12%)	Corn silage (Corn silage)											15.7	
C4	13.6	13.6	Hamblen SIL (Ha 0-2%)	Corn silage (Corn silage)					28.7							
C5	25.4	25.4	Emory SIL (Em 0-3%)	Corn silage (Corn silage)					76.1							
H1	16.6	16.1	Waynesboro SIL (WaC 5-12%)	Fescue hay maint (Fescue hay maint)												
C10	27.3	26.4	Waynesboro SIL (WaC 5-12%)	Corn silage (Corn silage)						25.8						
C11	20.6	20.6	Waynesboro SIL (WaC 5-12%)	Corn silage (Corn silage)						1.6					61.7	
C12	13.5	13.5	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)											2.9	
C6	20.4	19.9	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)											18.6	
C7	30.2	28.7	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)												
C8	10.5	9.6	Etowah GR-SIL (EwC 5-12%)	Corn silage (Corn silage)					5.2	23.9						
C9	12.5	12.5	Waynesboro SIL (WaC 5-12%)	Corn silage (Corn silage)					37.4							
Total	*296.1*	*235.5*							*251.2*	*51.3*					*231.2*	

	No. indicates total loads "X" indicates other manure apps

Manure Application Planning Calendar – November 2013 through October 2014

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2014 Crop (Prev. Primary Crop)	Nov '13	Dec '13	Jan '14	Feb '14	Mar '14	Apr '14	May '14	Jun '14	Jul '14	Aug '14	Sep '14	Oct '14
1	22.6	0.0	Christian GR-SIL (CnD2 12-20%)	Fescue pasture maint (Fescue pasture maint)												
L1	3.4	0.0	Waynesboro SIL (WaC 5-12%)	Fescue pasture new (Fescue pasture new)												
L2	4.7	0.0	Waynesboro SIL (WaC 5-12%)	Fescue pasture new (Fescue pasture new)												
L3	7.2	0.0	Christian GR-SIL (CnD2 12-20%)	Fescue pasture new (Fescue pasture new)												
D1	4.1	0.0	Waynesboro SIL (WaC2 5-12%)	Fescue pasture maint (Fescue pasture maint)												
CP1	14.5	0.0	Hamblen SIL (Ha 0-2%)	Fescue pasture maint (Fescue pasture maint)												
C1	26.0	26.0	Emory SIL (Em 0-3%)	Corn silage (Corn silage)											78.0	
C2	18.1	18.1	Waynesboro SICL (WbC3 5-12%)	Corn silage (Corn silage)												
C3	5.2	5.2	Waynesboro SICL (WbC3 5-12%)	Corn silage (Corn silage)											15.7	
C4	13.6	13.6	Hamblen SIL (Ha 0-2%)	Corn silage (Corn silage)											41.0	
C5	25.4	25.4	Emory SIL (Em 0-3%)	Corn silage (Corn silage)					17.5						76.1	
H1	16.6	16.1	Waynesboro SIL (WaC 5-12%)	Fescue hay maint (Fescue hay maint)												
C10	27.3	26.4	Waynesboro SIL (WaC 5-12%)	Corn silage (Corn silage)					61.8	17.5						
C11	20.6	20.6	Waynesboro SIL (WaC 5-12%)	Corn silage (Corn silage)					19.3							
C12	13.5	13.5	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)												
C6	20.4	19.9	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)						2.4					4.2	
C7	30.2	28.7	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)					86.1							
C8	10.5	9.6	Etowah GR-SIL (EwC 5-12%)	Corn silage (Corn silage)					29.0							
C9	12.5	12.5	Waynesboro SIL (WaC 5-12%)	Corn silage (Corn silage)					37.4							
Total	*296.1*	*235.5*							*251.1*	*45.7*					*215.0*	

	No. indicates total loads "X" indicates other manure apps

Manure Application Planning Calendar – November 2014 through October 2015

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2015 Crop (Prev. Primary Crop)	Nov '14	Dec '14	Jan '15	Feb '15	Mar '15	Apr '15	May '15	Jun '15	Jul '15	Aug '15	Sep '15	Oct '15
1	22.6	0.0	Christian GR-SIL (CnD2 12-20%)	Fescue pasture maint (Fescue pasture maint)												
L1	3.4	0.0	Waynesboro SIL (WaC 5-12%)	Fescue pasture new (Fescue pasture new)												
L2	4.7	0.0	Waynesboro SIL (WaC 5-12%)	Fescue pasture new (Fescue pasture new)												
L3	7.2	0.0	Christian GR-SIL (CnD2 12-20%)	Fescue pasture new (Fescue pasture new)												
D1	4.1	0.0	Waynesboro SIL (WaC2 5-12%)	Fescue pasture maint (Fescue pasture maint)												
CP1	14.5	0.0	Hamblen SIL (Ha 0-2%)	Fescue pasture maint (Fescue pasture maint)												
C1	26.0	26.0	Emory SIL (Em 0-3%)	Corn silage (Corn silage)												
C2	18.1	18.1	Waynesboro SICL (WbC3 5-12%)	Corn silage (Corn silage)					54.3							
C3	5.2	5.2	Waynesboro SICL (WbC3 5-12%)	Corn silage (Corn silage)												
C4	13.6	13.6	Hamblen SIL (Ha 0-2%)	Corn silage (Corn silage)												
C5	25.4	25.4	Emory SIL (Em 0-3%)	Corn silage (Corn silage)												
H1	16.6	16.1	Waynesboro SIL (WaC 5-12%)	Fescue hay maint (Fescue hay maint)												
C10	27.3	26.4	Waynesboro SIL (WaC 5-12%)	Corn silage (Corn silage)					61.8							
C11	20.6	20.6	Waynesboro SIL (WaC 5-12%)	Corn silage (Corn silage)												
C12	13.5	13.5	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)												
C6	20.4	19.9	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)						45.6						
C7	30.2	28.7	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)					86.1							
C8	10.5	9.6	Etowah GR-SIL (EwC 5-12%)	Corn silage (Corn silage)					29.0							
C9	12.5	12.5	Waynesboro SIL (WaC 5-12%)	Corn silage (Corn silage)					37.4							
Total	*296.1*	*235.5*							*268.6*	*45.6*						

	No. indicates total loads "X" indicates other manure apps

6.7. Planned Nutrient Applications (Manure-spreadable Area)

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
C1	Mar 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,194 Lbs	26.0	92	0	0
C1	Mar 2011	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	78 Lds	273,000 Gal	26.0	125	103	140
C1	Sep 2011	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,300 Gal	76.5 Lds	267,750 Gal	26.0	123	101	137
C1	Mar 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,194 Lbs	26.0	92	0	0
C1	Mar 2013	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,194 Lbs	26.0	92	0	0
C1	Mar 2013	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	78 Lds	273,000 Gal	26.0	125	103	140
C1	Sep 2013	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	78 Lds	273,000 Gal	26.0	125	103	140
C1	Mar 2014	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,194 Lbs	26.0	92	0	0
C1	Sep 2014	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	78 Lds	273,000 Gal	26.0	125	103	140
C1	Mar 2015	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,194 Lbs	26.0	92	0	0
C1	Sep 2015	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	78 Lds	273,000 Gal	26.0	125	103	140
C2	Mar 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		3,616 Lbs	18.1	92	0	0
C2	Apr 2011	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	24.2 Lds	84,700 Gal	8.1	125	103	140
C2	Apr 2011	Sm gr/ryegrass spring hay	Calf Barn	Spreader, Not incorporated	1-yr P	2.5 Ton	1.5 Lds	18 Ton	7.2	76	117	115

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
C2	Sep 2011	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	Custom	10,300 Gal	2.1 Lds	7,350 Gal	0.7	123	101	137
C2	Mar 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		3,616 Lbs	18.1	92	0	0
C2	Sep 2012	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	54.3 Lds	190,050 Gal	18.1	125	103	140
C2	Mar 2013	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		3,616 Lbs	18.1	92	0	
C2	Sep 2013	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	54.3 Lds	190,050 Gal	18.1	125	103	140
C2	Mar 2014	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		3,616 Lbs	18.1	92	0	0
C2	Mar 2015	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	54.3 Lds	190,050 Gal	18.1	125	103	140
C2	Mar 2015	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		3,616 Lbs	18.1	92	0	0
C3	Mar 2011	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	15.7 Lds	54,950 Gal	5.2	125	103	140
C3	Mar 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		1,044 Lbs	5.2	92	0	0
C3	Sep 2011	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	Custom	10,300 Gal	15.4 Lds	53,900 Gal	5.2	123	101	137
C3	Mar 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		1,044 Lbs	5.2	92	0	0
C3	Mar 2012	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	0.1 Lds	350 Gal		125	103	140
C3	Sep 2012	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	15.7 Lds	54,950 Gal	5.2	125	103	140

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
C3	Mar 2013	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		1,044 Lbs	5.2	92	0	0
C3	Sep 2013	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	15.7 Lds	54,950 Gal	5.2	125	103	140
C3	Mar 2014	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		1,044 Lbs	5.2	92	0	0
C3	Sep 2014	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	15.7 Lds	54,950 Gal	5.2	125	103	40
C3	Mar 2015	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		1,044 Lbs	5.2	92	0	0
C3	Sep 2015	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	6.9 Lds	24,150 Gal	2.3	125	103	140
C4	Mar 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		2,730 Lbs	13.6	92	0	0
C4	Mar 2011	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	41 Lds	143,500 Gal	13.7	125	103	140
C4	Mar 2012	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	41 Lds	143,500 Gal	13.7	125	103	140
C4	Mar 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		2,730 Lbs	13.6	92	0	0
C4	Sep 2012	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	12.4 Lds	43,400 Gal	4.1	125	103	140
C4	Oct 2012	Sm gr/ryegrass spring hay	Bunk	Spreader, Not incorporated	1-yr P	2.5 Ton	2 Lds	24 Ton	9.6	76	117	115
C4	Mar 2013	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	28.7 Lds	100,450 Gal	9.6	125	103	140
C4	Mar 2013	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		2,730 Lbs	13.6	92	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
C4	Mar 2014	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		2,730 Lbs	13.6	92	0	0
C4	Sep 2014	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	41 Lds	143,500 Gal	13.7	125	103	140
C4	Mar 2015	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		2,730 Lbs	13.6	92	0	0
C5	Mar 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,070 Lbs	25.4	92	0	0
C5	Mar 2011	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	76.1 Lds	266,350 Gal	25.4	125	103	140
C5	Mar 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,070 Lbs	25.4	92	0	0
C5	Apr 2012	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	76.1 Lds	266,350 Gal	25.4	125	103	140
C5	Oct 2012	Sm gr/ryegrass spring hay	Calf Barn	Spreader, Not incorporated	Custom	1.7 Ton	1.1 Lds	13.2 Ton	7.8	52	80	78
C5	Oct 2012	Sm gr/ryegrass spring hay	Bunk	Spreader, Not incorporated	Custom	1.5 Ton	2.2 Lds	26.4 Ton	17.6	45	70	69
C5	Mar 2013	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,070 Lbs	25.4	92	0	0
C5	Mar 2013	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	76.1 Lds	266,350 Gal	25.4	125	103	140
C5	Mar 2014	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	Custom	5,000 Gal	17.5 Lds	61,250 Gal	12.3	60	49	67
C5	Mar 2014	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,070 Lbs	25.4	92	0	0
C5	Sep 2014	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	76.1 Lds	266,350 Gal	25.4	125	103	140

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
C5	Mar 2015	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,070 Lbs	25.4	92	0	0
H1	Mar 2011	Fescue hay maint	46-0-0	Surface broadcast	Custom	200 Lbs		3,218 Lbs	16.1	92	0	0
H1	Mar 2012	Fescue hay maint	46-0-0	Surface broadcast	Custom	200 Lbs		3,218 Lbs	16.1	92	0	0
H1	Apr 2012	Fescue hay maint	Holding Pond	Tank, Not incorporated	1-yr P	5,600 Gal	25.8 Lds	90,300 Gal	16.1	67	55	74
H1	Mar 2013	Fescue hay maint	Holding Pond	Tank, Not incorporated	1-yr P	5,600 Gal	25.8 Lds	90,300 Gal	16.1	67	55	74
H1	Apr 2014	Fescue hay maint	Holding Pond	Tank, Not incorporated	1-yr P	5,600 Gal	25.8 Lds	90,300 Gal	16.1	67	55	74
H1	Mar 2015	Fescue hay maint	46-0-0	Surface broadcast	Custom	200 Lbs		3,218 Lbs	16.1	92	0	0
C10	Mar 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,282 Lbs	26.4	92	0	0
C10	Apr 2011	Sm gr/ryegrass spring hay	Bunk	Spreader, Not incorporated	1-yr P	2.5 Ton	3.9 Lds	46.8 Ton	18.7	76	117	115
C10	Sep 2011	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	78 Lds	273,000 Gal	26.0	125	103	140
C10	Mar 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,282 Lbs	26.4	92	0	0
C10	Apr 2012	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	1.3 Lds	4,550 Gal	0.4	125	103	140
C10	Mar 2013	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,282 Lbs	26.4	92	0	0
C10	Apr 2013	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	21.7 Lds	75,950 Gal	7.2	125	103	140
C10	Apr 2013	Sm gr/ryegrass spring hay	Calf Barn	Spreader, Not incorporated	1-yr P	2.5 Ton	1.5 Lds	18 Ton	7.2	76	117	115
C10	Apr 2013	Sm gr/ryegrass spring hay	Bunk	Spreader, Not incorporated	1-yr P	2.5 Ton	2.6 Lds	31.2 Ton	12.5	76	117	115

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
C10	Mar 2014	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,282 Lbs	26.4	92	0	0
C10	Mar 2014	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	61.8 Lds	216,300 Gal	20.6	125	103	140
C10	Apr 2014	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	17.5 Lds	61,250 Gal	5.8	125	103	140
C10	Mar 2015	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,282 Lbs	26.4	92	0	)
C10	Mar 2015	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	61.8 Lds	216,300 Gal	20.6	125	103	140
C10	Sep 2015	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	79.3 Lds	277,550 Gal	26.4	125	103	140
C11	Mar 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		4,112 Lbs	20.6	92	0	0
C11	Sep 2011	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	15.7 Lds	54,950 Gal	5.2	125	103	140
C11	Oct 2011	Sm gr/ryegrass spring hay	Bunk	Spreader, Not incorporated	1-yr P	2.5 Ton	1.7 Lds	20.4 Ton	8.2	76	117	115
C11	Oct 2011	Sm gr/ryegrass spring hay	Calf Barn	Spreader, Not incorporated	1-yr P	2.5 Ton	1.5 Lds	18 Ton	7.2	76	117	'5
C11	Mar 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		4,112 Lbs	20.6	92	0	0
C11	Apr 2012	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	46.1 Lds	161,350 Gal	15.4	125	103	140
C11	Mar 2013	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		4,112 Lbs	20.6	92	0	0
C11	Apr 2013	Sm gr/ryegrass spring hay	Calf Barn	Spreader, Not incorporated	1-yr P	2.5 Ton	0.3 Lds	3.6 Ton	1.4	76	117	115

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
C11	Apr 2013	Sm gr/ryegrass spring hay	Bunk	Spreader, Not incorporated	1-yr P	2.5 Ton	1.3 Lds	15.6 Ton	6.2	76	117	115
C11	Sep 2013	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	61.7 Lds	215,950 Gal	20.6	125	103	140
C11	Mar 2014	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	Custom	5,500 Gal	19.3 Lds	67,550 Gal	12.3	65	54	73
C11	Mar 2014	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		4,112 Lbs	20.6	92	0	0
C11	Mar 2015	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		4,112 Lbs	20.6	92	0	0
C11	Sep 2015	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	4,000 Gal	23.5 Lds	82,250 Gal	20.6	48	39	53
C12	Mar 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		2,702 Lbs	13.5	92	0	0
C12	Sep 2011	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	40.6 Lds	142,100 Gal	13.5	125	103	140
C12	Mar 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		2,702 Lbs	13.5	92	0	0
C12	Mar 2013	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		2,702 Lbs	13.5	92	0	0
C12	Sep 2013	Sm gr/ryegrass spring hay	Bunk	Spreader, Not incorporated	1-yr P	2.5 Ton	2.9 Lds	34.8 Ton	13.9	76	117	115
C12	Mar 2014	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		2,702 Lbs	13.5	92	0	0
C12	Mar 2015	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		2,702 Lbs	13.5	92	0	0
C12	Sep 2015	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	40.6 Lds	142,100 Gal	13.5	125	103	140

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
C6	Mar 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		3,976 Lbs	19.9	92	0	0
C6	Mar 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		3,976 Lbs	19.9	92	0	0
C6	Apr 2012	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	40 Lds	140,000 Gal	13.3	125	103	140
C6	Sep 2012	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	59.7 Lds	208,950 Gal	19.9	125	103	
C6	Mar 2013	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		3,976 Lbs	19.9	92	0	0
C6	Sep 2013	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	18.6 Lds	65,100 Gal	6.2	125	103	140
C6	Mar 2014	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		3,976 Lbs	19.9	92	0	0
C6	Apr 2014	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	2.4 Lds	8,400 Gal	0.8	125	103	140
C6	Sep 2014	Sm gr/ryegrass spring hay	Bunk	Spreader, Not incorporated	1-yr P	2.5 Ton	4.2 Lds	50.4 Ton	20.2	76	117	115
C6	Mar 2015	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		3,976 Lbs	19.9	92	0	0
C6	Apr 2015	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	45.6 Lds	159,600 Gal	15.2	125	103	140
C7	Mar 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,736 Lbs	28.7	92	0	0
C7	Oct 2011	Sm gr/ryegrass spring hay	Bunk	Spreader, Not incorporated	1-yr P	2.5 Ton	2.5 Lds	30 Ton	12.0	76	117	115
C7	Mar 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,736 Lbs	28.7	92	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
C7	Sep 2012	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	86.1 Lds	301,350 Gal	28.7	125	103	140
C7	Mar 2013	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,736 Lbs	28.7	92	0	0
C7	Mar 2014	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,736 Lbs	28.7	92	0	0
C7	Mar 2014	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	86.1 Lds	301,350 Gal	28.7	125	103	140
C7	Mar 2015	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	86.1 Lds	301,350 Gal	28.7	125	103	140
C7	Mar 2015	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		5,736 Lbs	28.7	92	0	0
C8	Mar 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		1,930 Lbs	9.6	92	0	0
C8	Mar 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		1,930 Lbs	9.6	92	0	0
C8	Apr 2012	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	29 Lds	101,500 Gal	9.7	125	103	140
C8	Mar 2013	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	5.2 Lds	18,200 Gal	1.7	125	103	140
C8	Mar 2013	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		1,930 Lbs	9.6	92	0	0
C8	Apr 2013	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	23.9 Lds	83,650 Gal	8.0	125	103	140
C8	Mar 2014	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	29 Lds	101,500 Gal	9.7	125	103	140
C8	Mar 2014	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		1,930 Lbs	9.6	92	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
C8	Mar 2015	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	29 Lds	101,500 Gal	9.7	125	103	140
C8	Mar 2015	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		1,930 Lbs	9.6	92	0	0
C9	Mar 2011	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	16 Lds	56,000 Gal	5.3	125	103	140
C9	Mar 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		2,492 Lbs	12.5	92	0	0
C9	Apr 2011	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	21.5 Lds	75,250 Gal	7.2	125	103	140
C9	Mar 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		2,492 Lbs	12.5	92	0	0
C9	Apr 2012	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	37.4 Lds	130,900 Gal	12.5	125	103	140
C9	Mar 2013	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	37.4 Lds	130,900 Gal	12.5	125	103	140
C9	Mar 2013	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		2,492 Lbs	12.5	92	0	0
C9	Mar 2014	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		2,492 Lbs	12.5	92	0	0
C9	Mar 2014	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	37.4 Lds	130,900 Gal	12.5	125	103	140
C9	Mar 2015	Sm gr/ryegrass spring hay	Holding Pond	Tank, Not incorporated	1-yr P	10,500 Gal	37.4 Lds	130,900 Gal	12.5	125	103	140
C9	Mar 2015	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs		2,492 Lbs	12.5	92	0	0

Planned Nutrient Applications (Non-manure-spreadable Area)

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
1	Mar 2011	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	4,522 Lbs	22.6	92	0	0
1	Mar 2012	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	4,522 Lbs	22.6	92	0	0
1	Mar 2013	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	4,522 Lbs	22.6	92	0	0
1	Mar 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	4,522 Lbs	22.6	92	0	0
1	Mar 2015	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	4,522 Lbs	22.6	92	0	0
D1	Mar 2011	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	828 Lbs	4.1	92	0	0
D1	Mar 2012	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	828 Lbs	4.1	92	0	0
D1	Mar 2013	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	828 Lbs	4.1	92	0	0
D1	Mar 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	828 Lbs	4.1	92	0	0
D1	Mar 2015	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	828 Lbs	4.1	92	0	0
CP1	Mar 2011	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	2,892 Lbs	14.5	92	0	0
CP1	Mar 2012	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	2,892 Lbs	14.5	92	0	0
CP1	Mar 2013	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	2,892 Lbs	14.5	92	0	0
CP1	Mar 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	2,892 Lbs	14.5	92	0	0
CP1	Mar 2015	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	2,892 Lbs	14.5	92	0	0
H1	Mar 2011	Fescue hay maint	46-0-0	Surface broadcast	Custom	200 Lbs	98 Lbs	0.5	92	0	0
H1	Mar 2012	Fescue hay maint	46-0-0	Surface broadcast	Custom	200 Lbs	98 Lbs	0.5	92	0	0
H1	Mar 2015	Fescue hay maint	46-0-0	Surface broadcast	Custom	200 Lbs	98 Lbs	0.5	92	0	0
C10	Mar 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	176 Lbs	0.9	92	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
C10	Mar 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	176 Lbs	0.9	92	0	0
C10	Mar 2013	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	176 Lbs	0.9	92	0	0
C10	Mar 2014	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	176 Lbs	0.9	92	0	0
C10	Mar 2015	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	176 Lbs	0.9	92	0	0
C6	Mar 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	98 Lbs	0.5	92	0	0
C6	Mar 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	98 Lbs	0.5	92	0	0
C6	Mar 2013	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	98 Lbs	0.5	92	0	0
C6	Mar 2014	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	98 Lbs	0.5	92	0	0
C6	Mar 2015	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	98 Lbs	0.5	92	0	0
C7	Mar 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	296 Lbs	1.5	92	0	0
C7	Mar 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	296 Lbs	1.5	92	0	0
C7	Mar 2013	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	296 Lbs	1.5	92	0	0
C7	Mar 2014	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	296 Lbs	1.5	92	0	0
C7	Mar 2015	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	296 Lbs	1.5	92	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
C8	Mar 2011	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	176 Lbs	0.9	92	0	0
C8	Mar 2012	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	176 Lbs	0.9	92	0	0
C8	Mar 2013	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	176 Lbs	0.9	92	0	0
C8	Mar 2014	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	176 Lbs	0.9	92	0	0
C8	Mar 2015	Sm gr/ryegrass spring hay	46-0-0	Surface broadcast	Custom	200 Lbs	176 Lbs	0.9	92	0	0

6.8. Field Nutrient Balance (Manure-spreadable Area)

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2011	C1	26.0	Sm gr/ryegrass spring hay	3	165	0	0								
2011	C1	26.0	Corn silage	20	150	0	0	217	103	140	-98	103	140	1	-116
2012	C1	26.0	Sm gr/ryegrass spring hay	3	165	0	0								
2012	C1	26.0	Corn silage	20	150	0	0	215	101	137	-72†	204	277	0	-119
2013	C1	26.0	Sm gr/ryegrass spring hay	3	165	0	0								
2013	C1	26.0	Corn silage	20	150	0	0	217	103	140	-58†	307	417	1	-116
2014	C1	26.0	Sm gr/ryegrass spring hay	3	165	0	0								
2014	C1	26.0	Corn silage	20	150	0	0	217	103	140	-59†	410	557	2	-116
2015	C1	26.0	Sm gr/ryegrass spring hay	3	165	0	0								
2015	C1	26.0	Corn silage	20	150	0	0	217	103	140	-58†	513	697	3	-116
Total	**C1**				**1575**	**0**	**0**	**1083**	**513**	**697**					
2011	C2	18.1	Sm gr/ryegrass spring hay	3	165	0	0								
2011	C2	18.1	Corn silage	20	150	0	0	178	93	109	-137	93	109	-9	-147
2012	C2	18.1	Sm gr/ryegrass spring hay	3	165	0	0								
2012	C2	18.1	Corn grain	20	120	0	0	97	4	5	-167†	97	114	-35	-91
2013	C2	18.1	Sm gr/ryegrass spring hay	3	165	0	0								
2013	C2	18.1	Corn silage	20	150	0	0	217	103	140	-88†	200	254	1	-116
2014	C2	18.1	Sm gr/ryegrass spring hay	3	165	0	0								
2014	C2	18.1	Corn silage	20	150	0	0	217	103	140	-70†	303	394	2	-116
2015	C2	18.1	Sm gr/ryegrass spring hay	3	165	0	0								
2015	C2	18.1	Corn silage	20	150	0	0	217	103	140	-58†	406	534	3	-116
Total	**C2**				**1545**	**0**	**0**	**926**	**406**	**534**					
2011	C3	5.2	Sm gr/ryegrass spring hay	3	165	0	40								
2011	C3	5.2	Corn silage	20	150	0	160	217	103	139	-98	103	-61	1	-117

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2012	C3	5.2	Sm gr/ryegrass spring hay	3	165	0	40								
2012	C3	5.2	Corn silage	20	150	0	160	215	101	136	-72†	204	-64	0	-120
2013	C3	5.2	Sm gr/ryegrass spring hay	3	165	0	40								
2013	C3	5.2	Corn silage	20	150	0	160	217	103	139	-86†	307	-61	1	-117
2014	C3	5.2	Sm gr/ryegrass spring hay	3	165	0	40								
2014	C3	5.2	Corn silage	20	150	0	160	217	103	139	-70†	410	-61	2	-117
2015	C3	5.2	Sm gr/ryegrass spring hay	3	165	0	40								
2015	C3	5.2	Corn silage	20	150	0	160	217	103	139	-58†	513	-61	3	-117
Total	**C3**				**1575**	**0**	**1000**	**1083**	**513**	**692**					
2011	C4	13.6	Sm gr/ryegrass spring hay	3	165	0	0								
2011	C4	13.6	Corn silage	20	150	0	0	217	103	141	-98	103	141	1	-115
2012	C4	13.6	Sm gr/ryegrass spring hay	3	165	0	0								
2012	C4	13.6	Corn silage	20	150	0	0	217	103	141	-70†	206	282	2	-115
2013	C4	13.6	Sm gr/ryegrass spring hay	3	165	0	0								
2013	C4	13.6	Corn silage	20	150	0	0	271	186	221	-4†	392	503	86	-35
2014	C4	13.6	Sm gr/ryegrass spring hay	3	165	0	0								
2014	C4	13.6	Corn silage	20	150	0	0	92	0	0	-169†	392	503	-16	-256
2015	C4	13.6	Sm gr/ryegrass spring hay	3	165	0	0								
2015	C4	13.6	Corn silage	20	150	0	0	217	103	141	-80†	495	644	1	-115
Total	**C4**				**1575**	**0**	**0**	**1014**	**495**	**644**					
2011	C5	25.4	Sm gr/ryegrass spring hay	3	165	0	0								
2011	C5	25.4	Corn silage	20	150	0	0	217	103	140	-98	103	140	1	-116
2012	C5	25.4	Sm gr/ryegrass spring hay	3	165	0	0								
2012	C5	25.4	Corn silage	20	150	0	0	217	103	140	-70†	206	280	2	-116
2013	C5	25.4	Sm gr/ryegrass spring hay	3	165	0	0								

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2013	C5	25.4	Corn silage	20	150	0	0	265	176	212	-10†	382	492	76	-44
2014	C5	25.4	Sm gr/ryegrass spring hay	3	165	0	0								
2014	C5	25.4	Corn silage	20	150	0	0	121	24	33	-142†	406	525	-2	-223
2015	C5	25.4	Sm gr/ryegrass spring hay	3	165	0	0								
2015	C5	25.4	Corn silage	20	150	0	0	217	103	140	-75†	509	665	1	-116
Total	**C5**				**1575**	**0**	**0**	**1037**	**509**	**665**					
2011	H1	16.1	Fescue hay maint	3	105	0	30	92	0	0	-13	0	-30	-54	-156
2012	H1	16.1	Fescue hay maint	3	105	0	30	159	55	74	54	55	44	1	-82
2013	H1	16.1	Fescue hay maint	3	105	0	30	67	55	74	-23†	110	88	2	-82
2014	H1	16.1	Fescue hay maint	3	105	0	30	67	55	74	-17†	165	132	3	-82
2015	H1	16.1	Fescue hay maint	3	105	0	30	92	0	0	8†	165	102	-51	-156
Total	**H1**				**525**	**0**	**150**	**477**	**165**	**222**					
2011	C10	26.4	Sm gr/ryegrass spring hay	3	165	0	0								
2011	C10	26.4	Corn silage	20	150	0	0	146	83	81	-169	83	81	-19	-175
2012	C10	26.4	Sm gr/ryegrass spring hay	3	165	0	0								
2012	C10	26.4	Corn silage	20	150	0	0	217	103	140	-84†	186	221	1	-116
2013	C10	26.4	Sm gr/ryegrass spring hay	3	165	0	0								
2013	C10	26.4	Corn silage	20	150	0	0	183	115	124	-98†	301	345	14	-132
2014	C10	26.4	Sm gr/ryegrass spring hay	3	165	0	0								
2014	C10	26.4	Corn silage	20	150	0	0	217	103	140	-63†	404	485	15	-116
2015	C10	26.4	Sm gr/ryegrass spring hay	3	165	0	0								
2015	C10	26.4	Corn silage	20	150	0	0	190	80	109	-88†	484	594	-7	-147
Total	**C10**				**1575**	**0**	**0**	**953**	**484**	**594**					
2011	C11	20.6	Sm gr/ryegrass spring hay	3	165	0	0								
2011	C11	20.6	Corn grain	20	120	0	0	92	0	0	-193	0	0	-39	-96
2012	C11	20.6	Sm gr/ryegrass spring hay	3	165	0	0								

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2012	C11	20.6	Corn silage	20	150	0	0	274	191	226	-41	191	226	89	-30
2013	C11	20.6	Sm gr/ryegrass spring hay	3	165	0	0								
2013	C11	20.6	Corn silage	20	150	0	0	120	43	43	-152†	234	269	30	-213
2014	C11	20.6	Sm gr/ryegrass spring hay	3	165	0	0								
2014	C11	20.6	Corn silage	20	150	0	0	256	136	184	-34†	370	453	64	-72
2015	C11	20.6	Sm gr/ryegrass spring hay	3	165	0	0								
2015	C11	20.6	Corn silage	20	150	0	0	92	0	0	-183†	370	453	-38	-256
Total	**C11**				**1545**	**0**	**0**	**834**	**370**	**453**					
2011	C12	13.5	Sm gr/ryegrass spring hay	3	165	0	0								
2011	C12	13.5	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2012	C12	13.5	Sm gr/ryegrass spring hay	3	165	0	0								
2012	C12	13.5	Corn silage	20	150	0	0	217	103	140	-98	103	140	1	-116
2013	C12	13.5	Sm gr/ryegrass spring hay	3	165	0	0								
2013	C12	13.5	Corn silage	20	150	0	0	92	0	0	-195†	103	140	-101	-256
2014	C12	13.5	Sm gr/ryegrass spring hay	3	165	0	0								
2014	C12	13.5	Corn silage	20	150	0	0	170	120	118	-133†	223	258	18	-138
2015	C12	13.5	Sm gr/ryegrass spring hay	3	165	0	0								
2015	C12	13.5	Corn silage	20	150	0	0	92	0	0	-202†	223	258	-84	-256
Total	**C12**				**1575**	**0**	**0**	**663**	**223**	**258**					
2011	C6	19.9	Sm gr/ryegrass spring hay	3	165	0	0								
2011	C6	19.9	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2012	C6	19.9	Sm gr/ryegrass spring hay	3	165	0	0								
2012	C6	19.9	Corn silage	20	150	0	0	176	69	94	-139	69	94	-33	-162
2013	C6	19.9	Sm gr/ryegrass spring hay	3	165	0	0								
2013	C6	19.9	Corn silage	20	150	0	0	217	103	140	-79†	172	234	1	-116

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2014	C6	19.9	Sm gr/ryegrass spring hay	3	165	0	0								
2014	C6	19.9	Corn silage	20	150	0	0	136	36	49	-143†	208	283	-65	-207
2015	C6	19.9	Sm gr/ryegrass spring hay	3	165	0	0								
2015	C6	19.9	Corn silage	20	150	0	0	265	198	224	-28†	406	507	96	-32
Total	**C6**				**1575**	**0**	**0**	**886**	**406**	**507**					
2011	C7	28.7	Sm gr/ryegrass spring hay	3	165	0	0								
2011	C7	28.7	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2012	C7	28.7	Sm gr/ryegrass spring hay	3	165	0	0								
2012	C7	28.7	Corn silage	20	150	0	0	124	49	48	-191	49	48	-53	-208
2013	C7	28.7	Sm gr/ryegrass spring hay	3	165	0	0								
2013	C7	28.7	Corn silage	20	150	0	0	217	103	140	-90†	152	188	1	-116
2014	C7	28.7	Sm gr/ryegrass spring hay	3	165	0	0								
2014	C7	28.7	Corn silage	20	150	0	0	217	103	140	-67†	255	328	2	-116
2015	C7	28.7	Sm gr/ryegrass spring hay	3	165	0	0								
2015	C7	28.7	Corn silage	20	150	0	0	217	103	140	-58†	358	468	3	-116
Total	**C7**				**1575**	**0**	**0**	**867**	**358**	**468**					
2011	C8	9.6	Sm gr/ryegrass spring hay	3	165	0	0								
2011	C8	9.6	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2012	C8	9.6	Sm gr/ryegrass spring hay	3	165	0	0								
2012	C8	9.6	Corn silage	20	150	0	0	218	104	141	-97	104	141	2	-115
2013	C8	9.6	Sm gr/ryegrass spring hay	3	165	0	0								
2013	C8	9.6	Corn silage	20	150	0	0	218	104	141	-69†	208	282	4	-115
2014	C8	9.6	Sm gr/ryegrass spring hay	3	165	0	0								
2014	C8	9.6	Corn silage	20	150	0	0	218	104	141	-57†	312	423	6	-115
2015	C8	9.6	Sm gr/ryegrass spring hay	3	165	0	0								

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2015	C8	9.6	Corn silage	20	150	0	0	218	104	141	-57†	416	564	8	-115
Total	**C8**				**1575**	**0**	**0**	**964**	**416**	**564**					
2011	C9	12.5	Sm gr/ryegrass spring hay	3	165	0	0								
2011	C9	12.5	Corn silage	20	150	0	0	217	103	140	-98	103	140	1	-116
2012	C9	12.5	Sm gr/ryegrass spring hay	3	165	0	0								
2012	C9	12.5	Corn silage	20	150	0	0	217	103	140	-70†	206	280	2	-116
2013	C9	12.5	Sm gr/ryegrass spring hay	3	165	0	0								
2013	C9	12.5	Corn silage	20	150	0	0	217	103	140	-58†	309	420	3	-116
2014	C9	12.5	Sm gr/ryegrass spring hay	3	165	0	0								
2014	C9	12.5	Corn silage	20	150	0	0	217	103	140	-58†	412	560	4	-116
2015	C9	12.5	Sm gr/ryegrass spring hay	3	165	0	0								
2015	C9	12.5	Corn silage	20	150	0	0	217	103	140	-58†	515	700	5	-116
Total	**C9**				**1575**	**0**	**0**	**1085**	**515**	**700**					

Field Nutrient Balance (Non-manure-spreadable Area)

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2011	1	22.6	Fescue pasture maint	3	120			92	0	0	-28			-54	-156
2012	1	22.6	Fescue pasture maint	3	120			92	0	0	-28			-54	-156
2013	1	22.6	Fescue pasture maint	3	120			92	0	0	-28			-54	-156
2014	1	22.6	Fescue pasture maint	3	120			92	0	0	-28			-54	-156
2015	1	22.6	Fescue pasture maint	3	120			92	0	0	-28			-54	-156
Total	**1**				**600**	**0**	**0**	**460**	**0**	**0**					
2011	L1	3.4	Fescue pasture new	3	30			0	0	0	-30			-54	-156
2012	L1	3.4	Fescue pasture new	3	30			0	0	0	-30			-54	-156
2013	L1	3.4	Fescue pasture new	3	30			0	0	0	-30			-54	-156
2014	L1	3.4	Fescue pasture new	3	30			0	0	0	-30			-54	-156

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2015	L1	3.4	Fescue pasture new	3	30			0	0	0	-30			-54	-156
Total	**L1**				**150**	**0**	**0**	**0**	**0**	**0**					
2011	L2	4.7	Fescue pasture new	3	30			0	0	0	-30			-54	-156
2012	L2	4.7	Fescue pasture new	3	30			0	0	0	-30			-54	-156
2013	L2	4.7	Fescue pasture new	3	30			0	0	0	-30			-54	-156
2014	L2	4.7	Fescue pasture new	3	30			0	0	0	-30			-54	-156
2015	L2	4.7	Fescue pasture new	3	30			0	0	0	-30			-54	-156
Total	**L2**				**150**	**0**	**0**	**0**	**0**	**0**					
2011	L3	7.2	Fescue pasture new	3	30			0	0	0	-30			-54	-156
2012	L3	7.2	Fescue pasture new	3	30			0	0	0	-30			-54	-156
2013	L3	7.2	Fescue pasture new	3	30			0	0	0	-30			-54	-156
2014	L3	7.2	Fescue pasture new	3	30			0	0	0	-30			-54	-156
2015	L3	7.2	Fescue pasture new	3	30			0	0	0	-30			-54	-156
Total	**L3**				**150**	**0**	**0**	**0**	**0**	**0**					
2011	D1	4.1	Fescue pasture maint	3	120			92	0	0	-28			-54	-156
2012	D1	4.1	Fescue pasture maint	3	120			92	0	0	-28			-54	-156
2013	D1	4.1	Fescue pasture maint	3	120			92	0	0	-28			-54	-156
2014	D1	4.1	Fescue pasture maint	3	120			92	0	0	-28			-54	-156
2015	D1	4.1	Fescue pasture maint	3	120			92	0	0	-28			-54	-156
Total	**D1**				**600**	**0**	**0**	**460**	**0**	**0**					
2011	CP1	14.5	Fescue pasture maint	3	120			92	0	0	-28			-54	-156
2012	CP1	14.5	Fescue pasture maint	3	120			92	0	0	-28			-54	-156
2013	CP1	14.5	Fescue pasture maint	3	120			92	0	0	-28			-54	-156
2014	CP1	14.5	Fescue pasture maint	3	120			92	0	0	-28			-54	-156
2015	CP1	14.5	Fescue pasture maint	3	120			92	0	0	-28			-54	-156
Total	**CP1**				**600**	**0**	**0**	**460**	**0**	**0**					
2011	H1	0.5	Fescue hay maint	3	105	0	30	92	0	0	-13	0	-30	-54	-156
2012	H1	0.5	Fescue hay maint	3	105	0	30	92	0	0	-13	0	-30	-54	-156
2013	H1	0.5	Fescue hay maint	3	105	0	30	0	0	0	-105	0	-30	-54	-156

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2014	H1	0.5	Fescue hay maint	3	105	0	30	0	0	0	-105	0	-30	-54	-156
2015	H1	0.5	Fescue hay maint	3	105	0	30	92	0	0	-13	0	-30	-54	-156
Total	**H1**				**525**	**0**	**150**	**276**	**0**	**0**					
2011	C10	0.9	Sm gr/ryegrass spring hay	3	165	0	0								
2011	C10	0.9	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2012	C10	0.9	Sm gr/ryegrass spring hay	3	165	0	0								
2012	C10	0.9	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2013	C10	0.9	Sm gr/ryegrass spring hay	3	165	0	0								
2013	C10	0.9	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2014	C10	0.9	Sm gr/ryegrass spring hay	3	165	0	0								
2014	C10	0.9	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2015	C10	0.9	Sm gr/ryegrass spring hay	3	165	0	0								
2015	C10	0.9	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
Total	**C10**				**1575**	**0**	**0**	**460**	**0**	**0**					
2011	C6	0.5	Sm gr/ryegrass spring hay	3	165	0	0								
2011	C6	0.5	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2012	C6	0.5	Sm gr/ryegrass spring hay	3	165	0	0								
2012	C6	0.5	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2013	C6	0.5	Sm gr/ryegrass spring hay	3	165	0	0								
2013	C6	0.5	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2014	C6	0.5	Sm gr/ryegrass spring hay	3	165	0	0								
2014	C6	0.5	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2015	C6	0.5	Sm gr/ryegrass spring hay	3	165	0	0								
2015	C6	0.5	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
Total	**C6**				**1575**	**0**	**0**	**460**	**0**	**0**					

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2011	C7	1.5	Sm gr/ryegrass spring hay	3	165	0	0								
2011	C7	1.5	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2012	C7	1.5	Sm gr/ryegrass spring hay	3	165	0	0								
2012	C7	1.5	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2013	C7	1.5	Sm gr/ryegrass spring hay	3	165	0	0								
2013	C7	1.5	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2014	C7	1.5	Sm gr/ryegrass spring hay	3	165	0	0								
2014	C7	1.5	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2015	C7	1.5	Sm gr/ryegrass spring hay	3	165	0	0								
2015	C7	1.5	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
Total	**C7**				**1575**	**0**	**0**	**460**	**0**	**0**					
2011	C8	0.9	Sm gr/ryegrass spring hay	3	165	0	0								
2011	C8	0.9	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2012	C8	0.9	Sm gr/ryegrass spring hay	3	165	0	0								
2012	C8	0.9	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2013	C8	0.9	Sm gr/ryegrass spring hay	3	165	0	0								
2013	C8	0.9	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2014	C8	0.9	Sm gr/ryegrass spring hay	3	165	0	0								
2014	C8	0.9	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
2015	C8	0.9	Sm gr/ryegrass spring hay	3	165	0	0								
2015	C8	0.9	Corn silage	20	150	0	0	92	0	0	-223	0	0	-102	-256
Total	**C8**				**1575**	**0**	**0**	**460**	**0**	**0**					

[1] Fertilizer Recs are the crop fertilizer recommendations. The N rec accounts for any N credit from previous legume crop.

[2] Nutrients Applied are the nutrients expected to be available to the crop from that year's manure applications plus nutrients from that year's commercial fertilizer applications and nitrates from irrigation water. With a double-crop year, the total nutrients applied for both crops and the year's balances are listed on the second crop's line.

[3] For N, Nutrients Applied minus Fertilizer Recs for indicated crop year. Also includes amount of residual N expected to become available that year from prior years' manure applicaitions. For P_2O_5 and K_2O, Nutrients Applied minus Fertilizer Recs *through* the indicated crop year, with positive balances carried forward to subsequent years. Negative

values indicate a potential need to apply additional nutrients.

[4] Nutrients Applied minus amount removed by harvested portion of crop through the indicated year. Positive balances are carried forward to subsequent years.

[¤] Indicates a custom fertilizer recommendation in the Fertilizer Recs column.

[a] Indicates in the Balance After Recs N column that the legume crop is assumed to utilize some or all of the supplied N.

[†] Indicates in the Balance After Recs N column that the value includes residual N expected to become available that year from prior years' manure applications.

6.9. Manure Inventory Annual Summary

Manure Source	Plan Period	On Hand at Start of Period	Total Generated	Total Imported	Total Trans-ferred In	Total Applied	Total Exported	Total Trans-ferred Out	On Hand at End of Period	Units
Holding Pond	Nov '10 - Oct '11	75,000	1,837,792	0	0	1,752,800	0	0	159,992	Gal
Dry Stack	Nov '10 - Oct '11	0	563	0	0	0	560	0	3	Ton
Bunk	Nov '10 - Oct '11	0	100	0	0	97	0	0	3	Ton
Calf Barn	Nov '10 - Oct '11	0	36	0	0	36	0	0	0	Ton
Pasture	Nov '10 - Oct '11	0	1,220	0	0	0	1,100	0	120	Ton
Poultry House 1	Nov '10 - Oct '11	0	195	0	0	0	10	0	186	Ton
Poultry House 2	Nov '10 - Oct '11	0	195	0	0	0	10	0	186	Ton
All Sources (liquid)	**Nov '10 - Oct '11**	**75,000**	**1,837,792**	**0**	**0**	**1,752,800**	**0**	**0**	**159,992**	**Gal**
All Sources (solid)	**Nov '10 - Oct '11**	**0**	**2,309**	**0**	**0**	**133**	**1,679**	**0**	**497**	**Ton**
Holding Pond	Nov '11 - Oct '12	159,992	1,837,792	0	0	1,837,500	0	0	160,284	Gal
Dry Stack	Nov '11 - Oct '12	3	563	0	0	0	540	0	26	Ton
Bunk	Nov '11 - Oct '12	3	100	0	0	50	48	0	5	Ton
Calf Barn	Nov '11 - Oct '12	0	36	0	0	13	18	0	5	Ton
Pasture	Nov '11 - Oct '12	120	1,220	0	0	0	1,200	0	140	Ton
Poultry House 1	Nov '11 - Oct '12	186	195	0	0	0	195	0	186	Ton
Poultry House 2	Nov '11 - Oct '12	186	195	0	0	0	195	0	186	Ton
All Sources (liquid)	**Nov '11 - Oct '12**	**159,992**	**1,837,792**	**0**	**0**	**1,837,500**	**0**	**0**	**160,284**	**Gal**
All Sources (solid)	**Nov '11 - Oct '12**	**497**	**2,309**	**0**	**0**	**64**	**2,195**	**0**	**548**	**Ton**
Holding Pond	Nov '12 - Oct '13	160,284	1,837,792	0	0	1,837,850	0	0	160,226	Gal
Dry Stack	Nov '12 - Oct '13	26	563	0	0	0	570	0	19	Ton
Bunk	Nov '12 - Oct '13	5	100	0	0	82	0	0	23	Ton
Calf Barn	Nov '12 - Oct '13	5	36	0	0	22	0	0	19	Ton
Pasture	Nov '12 - Oct '13	140	1,220	0	0	0	1,200	0	160	Ton
Poultry House 1	Nov '12 - Oct '13	186	195	0	0	0	195	0	187	Ton
Poultry House 2	Nov '12 - Oct '13	186	195	0	0	0	195	0	187	Ton
All Sources (liquid)	**Nov '12 - Oct '13**	**160,284**	**1,837,792**	**0**	**0**	**1,837,850**	**0**	**0**	**160,226**	**Gal**
All Sources (solid)	**Nov '12 - Oct '13**	**548**	**2,309**	**0**	**0**	**103**	**2,159**	**0**	**594**	**Ton**
Holding Pond	Nov '13 - Oct '14	160,226	1,837,792	0	0	1,776,600	0	0	221,418	Gal
Dry Stack	Nov '13 - Oct '14	19	563	0	0	0	570	0	12	Ton
Bunk	Nov '13 - Oct '14	23	100	0	0	50	56	0	17	Ton
Calf Barn	Nov '13 - Oct '14	19	36	0	0	0	34	0	21	Ton
Pasture	Nov '13 - Oct '14	160	1,220	0	0	0	1,200	0	180	Ton
Poultry House 1	Nov '13 - Oct '14	187	195	0	0	0	195	0	187	Ton
Poultry House 2	Nov '13 - Oct '14	187	195	0	0	0	195	0	187	Ton
All Sources (liquid)	**Nov '13 - Oct '14**	**160,226**	**1,837,792**	**0**	**0**	**1,776,600**	**0**	**0**	**221,418**	**Gal**
All Sources (solid)	**Nov '13 - Oct '14**	**594**	**2,309**	**0**	**0**	**50**	**2,249**	**0**	**604**	**Ton**

Manure Source	Plan Period	On Hand at Start of Period	Total Generated	Total Imported	Total Trans-ferred In	Total Applied	Total Exported	Total Trans-ferred Out	On Hand at End of Period	Units
Holding Pond	Nov '14 - Oct '15	221,418	1,837,792	0	0	1,898,750	0	0	160,460	Gal
Dry Stack	Nov '14 - Oct '15	12	563	0	0	0	540	0	35	Ton
Bunk	Nov '14 - Oct '15	17	100	0	0	0	98	0	19	Ton
Calf Barn	Nov '14 - Oct '15	21	36	0	0	0	54	0	3	Ton
Pasture	Nov '14 - Oct '15	180	1,220	0	0	0	1,200	0	200	Ton
Poultry House 1	Nov '14 - Oct '15	187	195	0	0	0	195	0	188	Ton
Poultry House 2	Nov '14 - Oct '15	187	195	0	0	0	195	0	188	Ton
All Sources (liquid)	**Nov '14 - Oct '15**	**221,418**	**1,837,792**	**0**	**0**	**1,898,750**	**0**	**0**	**160,460**	**Gal**
All Sources (solid)	**Nov '14 - Oct '15**	**604**	**2,309**	**0**	**0**	**0**	**2,281**	**0**	**632**	**Ton**

6.10. Fertilizer Material Annual Summary

Product Analysis	Plan Period	Product Needed Nov - Dec	Product Needed Jan - Aug	Product Needed Sep - Oct	Total Product Needed	Units
46-0-0	Nov '10 - Oct '11	0	56,188	0	56,188	Lbs
46-0-0	Nov '11 - Oct '12	0	56,188	0	56,188	Lbs
46-0-0	Nov '12 - Oct '13	0	52,872	0	52,872	Lbs
46-0-0	Nov '13 - Oct '14	0	52,872	0	52,872	Lbs
46-0-0	Nov '14 - Oct '15	0	56,188	0	56,188	Lbs

6.11. Whole-farm Nutrient Balance (Manure-spreadable Area)

	N (Lbs)	P_2O_5 (Lbs)	K_2O (Lbs)
Total Manure Nutrients on Hand at Start of Plan[1]	1,980	735	998
Total Manure Nutrients Collected[2]	602,090	390,812	366,816
Total Manure Nutrients Imported[3]	0	0	0
Total Manure Nutrients Exported[4]	316,311	259,697	215,924
Total Manure Nutrients on Hand at End of Plan[5]	20,901	26,202	14,730
Total Manure Nutrients Applied[6]	266,723	105,707	137,462
Available Manure Nutrients Applied[7]	144,826	105,707	137,462
Commercial Fertilizer Nutrients Applied[8]	105,374	0	0
Available Nutrients Applied[9]	250,200	105,707	137,462
Nutrient Utilization Potential[10]	352,875	113,814	287,226
Nutrient Balance of Spreadable Acres[11*]	-102,675	-8,107	-149,764
Average Nutrient Balance per Spreadable Acre per Year[12*]	-87	-7	-127

1. Values indicate total manure nutrients present in storage(s) at the beginning of the plan.
2. Values indicate total manure nutrients collected on the farm.
3. Values indicate total manure nutrients imported onto the farm.
4. Values indicate total manure nutrients exported from the farm to an external operation.
5. Values indicate total manure nutrients present in storage(s) at the end of plan.
6. Values indicate total nutrients present in land-applied manure. Losses due to rate, timing and method of application are not included in these values.
7. Values indicate available manure nutrients applied on the farm based on rate, time and method of application. These values are based on the total manure nutrients applied (row 6) after accounting for state-specific nutrient losses due to rate, time and method of application.
8. Values indicate nutrients applied as commercial fertilizers and nitrates contained in irrigation water.
9. Values are the sum of available manure nutrients applied (row 7) and commercial fertilizer nutrients applied (row 8).
10. Values indicate nutrient utilization potential of crops grown. For N the value generally is based on crop N recommendation for non-legume crops and crop N uptake or other state-imposed limit for N application rates for legumes. P_2O_5 and K_2O values generally are based on fertilizer recommendations or crop removal (whichever is greatest).
11. Values indicate available nutrients applied (row 9) minus crop nutrient utilization potential (row 10). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
12. Values indicate average per acre nutrient balance. Values are calculated by dividing nutrient balance of spreadable acres (row 11) by the number of spreadable acres in plan and by the length of the plan in years. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.

* Non-trivial, positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. For example, plans that include legume crops often will not utilize the full N utilization potential for legume crops if manure can be applied to non-legume crops that require N for optimum yield. Positive values for P_2O_5 and/or K_2O do not necessarily indicate that the plan was not developed properly. For example, producers may be allowed to apply N-based application rates of manure to fields with low soil test P values or fields with a low potential P-loss risk based on the risk assessment tool used by the state. Negative values for P_2O_5 and K_2O indicate that planned applications to some fields are less than crop removal rates.

Whole-farm Nutrient Balance (Non-manure-spreadable Area)

	N (Lbs)	P_2O_5 (Lbs)	K_2O (Lbs)
Commercial Fertilizer Nutrients Applied[1]	20,808	0	0
Nutrient Utilization Potential[2]	33,136	0	73
Nutrient Balance of Non-spreadable Acres[3*]	-12,328	0	-73
Average Nutrient Balance per Non-spreadable Acre per Year[4*]	-41	0	0

1. Values indicate nutrients applied as commercial fertilizers and nitrates contained in irrigation water.
2. Values indicate nutrient utilization potential of crops grown based on crop fertilizer recommendations.

3. Values indicate commercial fertilizer nutrients applied (row 1) minus crop nutrient utilization potential (row 2). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
4. Values indicate average per acre nutrient balance. Values are calculated by dividing nutrient balance of non-spreadable acres (row 3) by number of non-spreadable acres in plan. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.

* Non-trivial, positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. Positive values for P_2O_5 and/or K_2O do not necessarily indicate that the plan was not developed properly. For example, multiple year applications may have been planned during the final plan year(s) and these nutrients will not be utilized by crops in the current plan. Negative values for P_2O_5 and K_2O indicate that applications to some fields may have been delayed to allow the producer to apply the nutrients in accordance with their fertilization schedule.

Section 7. Record Keeping

This section includes a list of key records that the operator should keep in order to document and verify implementation of the procedures in this CNMP. Records should be kept for a minimum of 5 years, or for the length of the contract, rotation or permit, whichever is longer, for each field where manure is applied.

These general records include but are not limited to:

- Soil test results
- Weather and soil conditions 24 hours prior to, during, and 24 hours after application of manure, chemicals and pesticides
- Documentation (can be verbal) of arrangements for land injection on land not owned by the grower
- Type, quantities, and sources of all nutrients generated and collected
- Type, quantities, and sources of all nutrients applied to each field
- Dates of manure applications
- Analysis of manure prior to application and test method used
- Analysis of the manure transferred, where applicable
- Dates manure was transferred, where applicable and to whom
- Amount of manure transferred, where applicable
- Inspection reports
- Preside Dress Soil Nitrate Testing (PSNT), where applicable
- Operation and Maintenance records of conservation practices and equipment
- Restricted pesticides used to meet label requirements
- Equipment Calibration records
- Crops planted, tillage methods, and dates planted
- Crop harvest dates and yields
- Conservation practices and management activities and implemented
- Adjustments to the nutrient management plan based on records and changes in farming operations as appropriate.
- Changes to the CNMP
- Weekly check of volume left in pit
- Annual visual inspection of retention structure (the pits), animal holding areas, if applicable and land application areas.
- Records of mortalities and how managed

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A&L Analytical Laboratories, Inc.

2790 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440

LAND APPLICATION ANALYSIS

Client :
Mr. John Donaldson

107 Donaldson Ave

Celina , TN 38551

Grower :
John Sparkman

PO :

Report No: 09-229-0262
Cust No: 01560
Date Printed: 08/25/2009
Date Recd : 8/17/2009

Page : 1 of 2

Lab Number : 76431 **Sample Id :** 1 Dry

Test	Analysis		Pounds Per Ton	
	As Received	Dry Basis	As Received	Dry Basis
Nitrogen, N %	0.890	3.38	75.7	288
Phosphorus, P %	0.24	0.91	46.9 P_2O_5	178
Potassium, K %	0.45	1.71	45.9 K_2O	175
Sulfur, S				
Magnesium, Mg				
Calcium, Ca				
Sodium, Na				
Iron, Fe				
Aluminum, Al				
Manganese, Mn Copper, Cu				
Zinc, Zn				
Boron, B				

Test	Result
Moisture %	73.7
Solid %	26.3

Additional Information	Result
Type	As Received

Comments :

RMMA Recommended Methods of Manure Analysis, Peters et al, 2002, In Press

SW USEPA, SW-846, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, 3rd Ed. Current Revision

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LAND APPLICATION ANALYSIS

Client :
Mr. John Donaldson

107 Donaldson Ave

Celina , TN 38551

Grower :
John Sparkman

PO :

Report No: 09-229-0262
Cust No: 01560
Date Printed: 08/25/2009
Date Recd : 8/17/2009

Lab Number : 76432 **Sample Id :** 2 Wet

Test	Analysis		Pounds Per Ton	
	As Received	Dry Basis	As Received	Dry Basis
Nitrogen, N %	0.310		26.4	
Phosphorus, P %	0.05		9.77 P_2O_5	
Potassium, K %	0.13		13.3 K_2O	
Sulfur, S				
Magnesium, Mg				
Calcium, Ca				
Sodium, Na				
Iron, Fe				
Aluminum, Al				
Manganese, Mn				
Copper, Cu				
Zinc, Zn				
Boron, B				

Test	Result
Moisture %	94.4
Solid %	5.6

Additional Information	Result
Type	As Received

Comments :

RMMA Recommended Methods of Manure Analysis, Peters et al, 2002, In Press

SW USEPA, SW-846, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, 3rd Ed. Current Revision

M. Scott McKee, Technical Director

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LAND APPLICATION ANALYSIS

Client :
Mr. John Donaldson

107 Donaldson Ave

Celina , TN 38551

Grower :
Susan Sparkman

PO :

Report No: 09-229-0263
Cust No: 01560
Date Printed: 08/25/2009
Date Recd : 8/17/2009

Page : 1 of 2

Lab Number : 76434 **Sample Id :** House 1

Test	Analysis		Pounds Per Ton	
	As Received	Dry Basis	As Received	Dry Basis
Nitrogen, N %	1.64	4.91	32.8	98.2
Phosphorus, P %	1.40	4.19	64.4 P_2O_5	193
Potassium, K %	1.03	3.08	24.7 K_2O	74.0
Sulfur, S				
Magnesium, Mg				
Calcium, Ca				
Sodium, Na				
Iron, Fe				
Aluminum, Al				
Manganese, Mn Copper, Cu				
Zinc, Zn				
Boron, B				

Test	Result
Moisture %	66.6
Solid %	33.4

Additional Information	Result
Type	Dry Basis

Comments :

RMMA Recommended Methods of Manure Analysis, Peters et al, 2002, In Press

SW USEPA, SW-846, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, 3rd Ed. Current Revision

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LAND APPLICATION ANALYSIS

Client :
Mr. John Donaldson

107 Donaldson Ave

Celina , TN 38551

Grower :
Susan Sparkman

PO :

Report No: 09-229-0263
Cust No: 01560
Date Printed: 08/25/2009
Date Recd : 8/17/2009

Page : 2 of 2

Lab Number : 76435 **Sample Id :** House 2

Test	Analysis		Pounds Per Ton	
	As Received	Dry Basis	As Received	Dry Basis
Nitrogen, N %	1.32	3.17	26.4	63.3
Phosphorus, P %	1.04	2.49	47.8 P_2O_5	115
Potassium, K %	0.90	2.15	21.6 K_2O	51.8
Sulfur, S				
Magnesium, Mg				
Calcium, Ca				
Sodium, Na				
Iron, Fe				
Aluminum, Al				
Manganese, Mn				
Copper, Cu				
Zinc, Zn				
Boron, B				

Test	Result
Moisture %	58.3
Solid %	41.7

Additional Information	Result
Type	Dry Basis

Comments :

RMMA Recommended Methods of Manure Analysis, Peters et al, 2002, In Press

SW USEPA, SW-846, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, 3rd Ed. Current Revision

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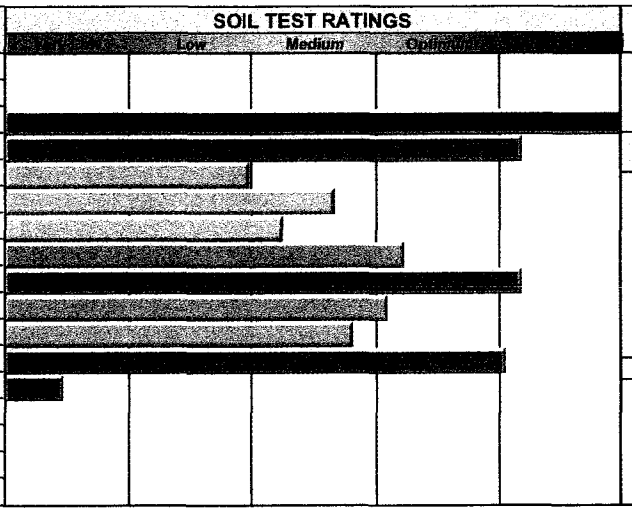
CO-OP

SOIL ANALYSIS

Client :	Grower :	
White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	JACOB SPARKMAN	Report No: 09-042-0912 Cust No: 02149 Date Printed: 02/17/2009 Date Received : 02/11/2009 PO: Page : 1 of 9

Lab Number : 19828 **Field Id :** **Sample Id :** 1

Test	Results
Soil pH	5.8
Buffer pH	7.56
Phosphorus (P)	298 LB/ACRE
Potassium (K)	436 LB/ACRE
Calcium (Ca)	2256 LB/ACRE
Magnesium (Mg)	292 LB/ACRE
Sulfur (S)	26 LB/ACRE
Boron (B)	1.6 LB/ACRE
Copper (Cu)	11.4 LB/ACRE
Iron (Fe)	212 LB/ACRE
Manganese (Mn)	242 LB/ACRE
Zinc (Zn)	18.8 LB/ACRE
Sodium (Na)	60 LB/ACRE
Soluble Salts	
Organic Matter	2.9 % ENR 102
Nitrate Nitrogen	



Calculated Cation Exchange Capacity

11.1 meq/100g

Calculated Cation Saturation

%K	5.0
%Ca	50.8
%Mg	11.0
%H	31.7
%Na	1.2

K : Mg Ratio

0.46

SOIL FERTILITY GUIDELINES

Crop : WHEAT SILAGE/CORN SILAGE **Yield Goal :** 10 Tons **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
3000 1.5	100	0	40	0	17	0.6	0	0	0	
Crop :							**Rec Units:**			

Comments :

WHEAT SILAGE/CORN SILAGE

RECOMMENDATIONS ARE INTENDED FOR A 8-10 TON WHEAT SILAGE YIELD AND A 20-25 TON CORN SILAGE YIELD.

FOR CORN SILAGE FOLLOWING WHEAT SILAGE, APPLY 150-0-120

Limestone application is targeted to bring soil pH to 6.5.

All of the recommended phosphorus can be applied prior to the small grain.

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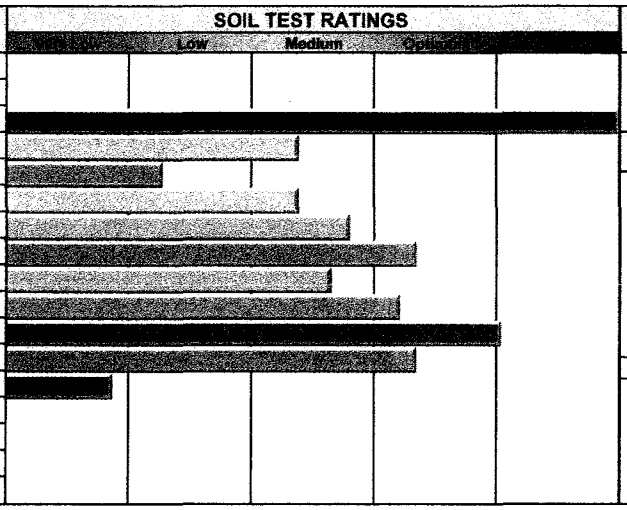
CO-OP

SOIL ANALYSIS

Client :	Grower :	
White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	JACOB SPARKMAN	Report No: 09-042-0912 Cust No: 02149 Date Printed: 02/17/2009 Date Received : 02/11/2009 PO: Page : 2 of 9

Lab Number : 19829 **Field Id :** **Sample Id :** 6

Test	Results
Soil pH	5.1
Buffer pH	7.38
Phosphorus (P)	222 LB/ACRE
Potassium (K)	256 LB/ACRE
Calcium (Ca)	1488 LB/ACRE
Magnesium (Mg)	236 LB/ACRE
Sulfur (S)	38 LB/ACRE
Boron (B)	1.8 LB/ACRE
Copper (Cu)	4.6 LB/ACRE
Iron (Fe)	238 LB/ACRE
Manganese (Mn)	558 LB/ACRE
Zinc (Zn)	11.0 LB/ACRE
Sodium (Na)	108 LB/ACRE
Soluble Salts	
Organic Matter	2.8 % ENR 100
Nitrate Nitrogen	



Calculated Cation Exchange Capacity: **10.2** meq/100g

Calculated Cation Saturation

%K	3.2
%Ca	36.5
%Mg	9.6
%H	48.6
%Na	2.3

K : Mg Ratio: 0.33

SOIL FERTILITY GUIDELINES

Crop : WHEAT SILAGE/CORN SILAGE **Yield Goal :** 10 Tons **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
5000 2.5	100	0	80	0	11	0	0	0	0	
Crop :							**Rec Units:**			

Comments :

WHEAT SILAGE/CORN SILAGE

RECOMMENDATIONS ARE INTENDED FOR A 8-10 TON WHEAT SILAGE YIELD AND A 20-25 TON CORN SILAGE YIELD.

FOR CORN SILAGE FOLLOWING WHEAT SILAGE, APPLY 150-0-120
Limestone application is targeted to bring soil pH to 6.5.
All of the recommended phosphorus can be applied prior to the small grain.

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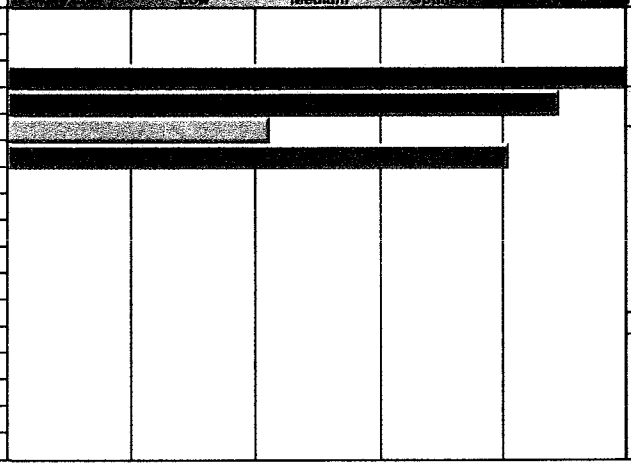
SOIL ANALYSIS

Client :	Grower :	
White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	JACOB SPARKMAN	Report No: 09-042-0912 Cust No: 02149 Date Printed: 02/17/2009 Date Received : 02/11/2009 PO: Page : 3 of 9

Lab Number : 19830 **Field Id :** **Sample Id :** 5

Test	Results
Soil pH	6.1
Buffer pH	7.68
Phosphorus (P)	334 LB/ACRE
Potassium (K)	556 LB/ACRE
Calcium (Ca)	2502 LB/ACRE
Magnesium (Mg)	510 LB/ACRE
Sulfur (S)	
Boron (B)	
Copper (Cu)	
Iron (Fe)	
Manganese (Mn)	
Zinc (Zn)	
Sodium (Na)	
Soluble Salts	
Organic Matter	4.1 % ENR 126
Nitrate Nitrogen	



Calculated Cation Exchange Capacity: 11.7 meq/100g

Calculated Cation Saturation

%K	6.1
%Ca	53.5
%Mg	18.2
%H	21.9

K : Mg Ratio: 0.34

SOIL FERTILITY GUIDELINES

Crop : COOL SEASON GRASS PASTURE **Yield Goal :** 3 TONS **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
1500 0.75	120	0	0	0						

Crop :	Rec Units:

Comments :

COOL SEASON GRASS PASTURE

Limestone application is targeted to bring soil pH to 6.5.

- On light soils with high grass hay yields, soil test annually to maintain soil pH and nutrient level.
- For grass hay or pasture needing high rates split the P and K application. Apply 1/2 in the spring and 1/2 in late summer.
- For cool season grass topdress with nitrogen: Feb 15 - March 15 60 to 100 lbs N/Acre. May 1-15 0 to 50 lbs N/Acre. Aug 1 - Sept 15 60 to 80 lbs N/Acre.

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SOIL ANALYSIS

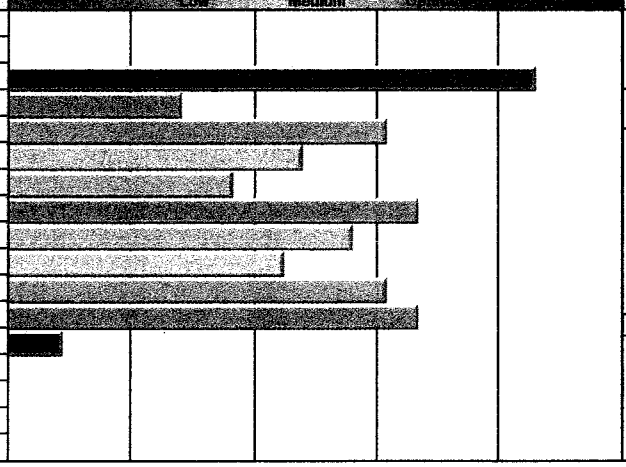
Client :	Grower :	
White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	JACOB SPARKMAN	Report No: 09-042-0912 Cust No: 02149 Date Printed: 02/17/2009 Date Received : 02/11/2009 PO: Page : 4 of 9

Lab Number : 19832 **Field Id :** **Sample Id :** 7

Test	Results
Soil pH	6.4
Buffer pH	7.79
Phosphorus (P)	144 LB/ACRE
Potassium (K)	172 LB/ACRE
Calcium (Ca)	2992 LB/ACRE
Magnesium (Mg)	218 LB/ACRE
Sulfur (S)	20 LB/ACRE
Boron (B)	2.0 LB/ACRE
Copper (Cu)	5.2 LB/ACRE
Iron (Fe)	130 LB/ACRE
Manganese (Mn)	302 LB/ACRE
Zinc (Zn)	10.2 LB/ACRE
Sodium (Na)	60 LB/ACRE
Soluble Salts	
Organic Matter	2.4 % ENR 92
Nitrate Nitrogen	

SOIL TEST RATINGS

Low Medium High



Calculated Cation Exchange Capacity	
10.4 meq/100g	
Calculated Cation Saturation	
%K	2.1
%Ca	71.9
%Mg	8.7
%H	16.2
%Na	1.3
K : Mg Ratio	
0.24	

SOIL FERTILITY GUIDELINES

Crop : WHEAT SILAGE/CORN SILAGE **Yield Goal :** 10 Tons **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
0 0	100	0	100	0	20	0	0	0	0	
Crop :							**Rec Units:**			

Comments :

WHEAT SILAGE/CORN SILAGE

RECOMMENDATIONS ARE INTENDED FOR A 8-10 TON WHEAT SILAGE YIELD AND A 20-25 TON CORN SILAGE YIELD.

FOR CORN SILAGE FOLLOWING WHEAT SILAGE, APPLY 150-0-60

- All of the recommended phosphorus can be applied prior to the small grain.

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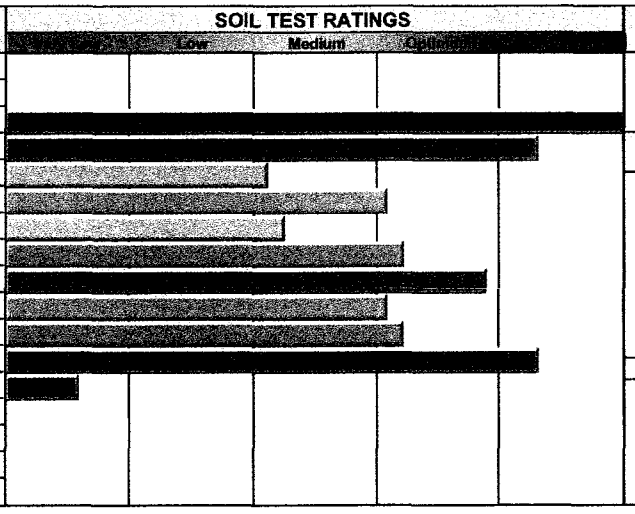
SOIL ANALYSIS

Client : White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	Grower : JACOB SPARKMAN	Report No: 09-042-0912 Cust No: 02149 Date Printed: 02/17/2009 Date Received : 02/11/2009 PO: Page : 5 of 9

Lab Number : 19833 **Field Id :** **Sample Id :** 9

Test	Results
Soil pH	6.0
Buffer pH	7.67
Phosphorus (P)	302 LB/ACRE
Potassium (K)	426 LB/ACRE
Calcium (Ca)	2150 LB/ACRE
Magnesium (Mg)	298 LB/ACRE
Sulfur (S)	26 LB/ACRE
Boron (B)	1.6 LB/ACRE
Copper (Cu)	8.0 LB/ACRE
Iron (Fe)	230 LB/ACRE
Manganese (Mn)	338 LB/ACRE
Zinc (Zn)	24.6 LB/ACRE
Sodium (Na)	70 LB/ACRE
Soluble Salts	
Organic Matter	2.6 % ENR 96
Nitrate Nitrogen	



Calculated Cation Exchange Capacity

10.0 meq/100g

Calculated Cation Saturation

%K	5.5
%Ca	53.8
%Mg	12.4
%H	26.4
%Na	1.5

K : Mg Ratio

0.44

SOIL FERTILITY GUIDELINES

Crop : CORN SILAGE **Yield Goal :** 24 TONS **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
2000 1	180	0	80	0	17	0.6	0	0	0	
Crop :							**Rec Units:**			

Comments :

CORN SILAGE

Limestone application is targeted to bring soil pH to 6.5.

· Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.

· For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P2O5/Acre.

· If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

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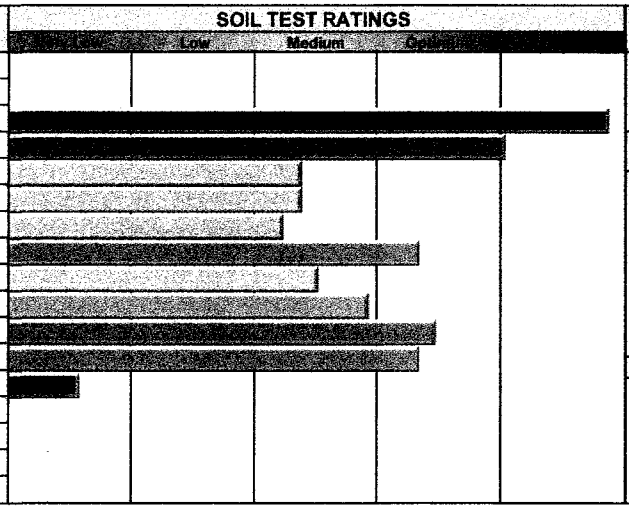
SOIL ANALYSIS

Client :	Grower :	
White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	JACOB SPARKMAN	Report No: 09-042-0912 Cust No: 02149 Date Printed: 02/17/2009 Date Received : 02/11/2009 PO: Page : 6 of 9

Lab Number : 19834 **Field Id :** **Sample Id :** 10

Test	Results
Soil pH	5.5
Buffer pH	7.69
Phosphorus (P)	192 LB/ACRE
Potassium (K)	330 LB/ACRE
Calcium (Ca)	2100 LB/ACRE
Magnesium (Mg)	192 LB/ACRE
Sulfur (S)	26 LB/ACRE
Boron (B)	1.8 LB/ACRE
Copper (Cu)	3.8 LB/ACRE
Iron (Fe)	194 LB/ACRE
Manganese (Mn)	410 LB/ACRE
Zinc (Zn)	10.8 LB/ACRE
Sodium (Na)	58 LB/ACRE
Soluble Salts	
Organic Matter	2.3 % ENR 90
Nitrate Nitrogen	



Calculated Cation Exchange Capacity	
9.1 meq/100g	
Calculated Cation Saturation	
%K	4.6
%Ca	57.7
%Mg	8.8
%H	27.3
%Na	1.4
K : Mg Ratio	
0.53	

SOIL FERTILITY GUIDELINES

Crop : WHEAT SILAGE/CORN SILAGE **Yield Goal :** 10 Tons **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
2500 1.25	100	0	40	0	17	0	0	0	0	
Crop :								**Rec Units:**		

Comments :

WHEAT SILAGE/CORN SILAGE

RECOMMENDATIONS ARE INTENDED FOR A 8-10 TON WHEAT SILAGE YIELD AND A 20-25 TON CORN SILAGE YIELD.

FOR CORN SILAGE FOLLOWING WHEAT SILAGE, APPLY 150-0-40

Limestone application is targeted to bring soil pH to 6.5.

- All of the recommended phosphorus can be applied prior to the small grain.

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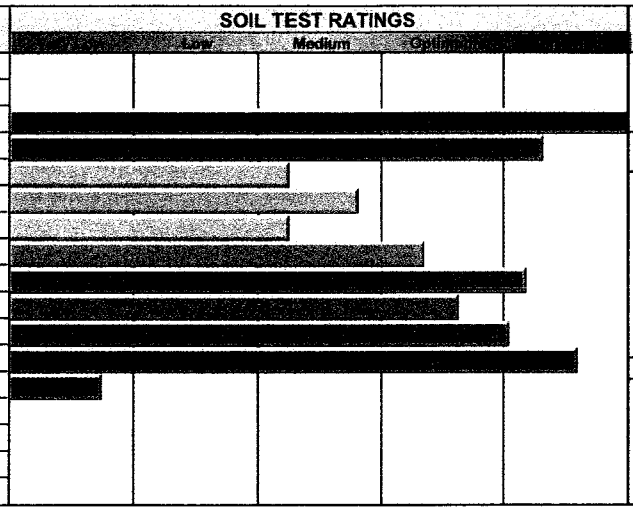
CO-OP

SOIL ANALYSIS

Client :	Grower :	
White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	JACOB SPARKMAN	Report No: 09-042-0912 Cust No: 02149 Date Printed: 02/17/2009 Date Received : 02/11/2009 PO: Page : 7 of 9

Lab Number : 19835 **Field Id :** **Sample Id :** 13

Test	Results
Soil pH	5.8
Buffer pH	7.68
Phosphorus (P)	452 LB/ACRE
Potassium (K)	406 LB/ACRE
Calcium (Ca)	2150 LB/ACRE
Magnesium (Mg)	262 LB/ACRE
Sulfur (S)	26 LB/ACRE
Boron (B)	2.0 LB/ACRE
Copper (Cu)	11.4 LB/ACRE
Iron (Fe)	340 LB/ACRE
Manganese (Mn)	520 LB/ACRE
Zinc (Zn)	30.6 LB/ACRE
Sodium (Na)	80 LB/ACRE
Soluble Salts	
Organic Matter	2.4 % ENR 92
Nitrate Nitrogen	



Calculated Cation Exchange Capacity

9.7 meq/100g

Calculated Cation Saturation

%K	5.4
%Ca	55.4
%Mg	11.3
%H	26.4
%Na	1.8

K : Mg Ratio

0.48

SOIL FERTILITY GUIDELINES

Crop : WHEAT SILAGE/CORN SILAGE **Yield Goal :** 10 Tons **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
2000 1	100	0	40	0	17	0	0	0	0	
Crop :								**Rec Units:**		

Comments :

WHEAT SILAGE/CORN SILAGE

RECOMMENDATIONS ARE INTENDED FOR A 8-10 TON WHEAT SILAGE YIELD AND A 20-25 TON CORN SILAGE YIELD.

FOR CORN SILAGE FOLLOWING WHEAT SILAGE, APPLY 150-0-120

Limestone application is targeted to bring soil pH to 6.5.

All of the recommended phosphorus can be applied prior to the small grain.

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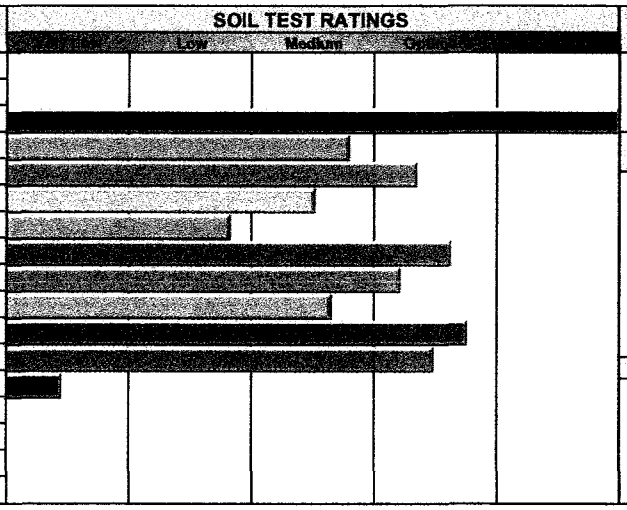
CO-OP

SOIL ANALYSIS

Client :	Grower :	Report No: 09-042-0912
White Farmers Co-Op	JACOB SPARKMAN	Cust No: 02149
Mr. Mitchell Stephens		Date Printed: 02/17/2009
RT 4 271 Mayberry St.		Date Received : 02/11/2009
Sparta TN 38583-9804		PO:
		Page : 8 of 9

Lab Number : 19836 **Field Id :** **Sample Id :** 16

Test	Results
Soil pH	4.9
Buffer pH	7.79
Phosphorus (P)	218 LB/ACRE
Potassium (K)	286 LB/ACRE
Calcium (Ca)	3798 LB/ACRE
Magnesium (Mg)	250 LB/ACRE
Sulfur (S)	20 LB/ACRE
Boron (B)	2.6 LB/ACRE
Copper (Cu)	6.6 LB/ACRE
Iron (Fe)	168 LB/ACRE
Manganese (Mn)	454 LB/ACRE
Zinc (Zn)	11.4 LB/ACRE
Sodium (Na)	64 LB/ACRE
Soluble Salts	
Organic Matter	2.0 % ENR 84
Nitrate Nitrogen	



Calculated Cation Exchange Capacity: 12.7 meq/100g

Calculated Cation Saturation

%K	2.9
%Ca	74.8
%Mg	8.2
%H	13.2
%Na	1.1

K : Mg Ratio: 0.35

SOIL FERTILITY GUIDELINES

Crop : WHEAT SILAGE/CORN SILAGE **Yield Goal :** 10 Tons **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
3000 1.5	100	0	80	0	20	0	0	0	0	
Crop :								**Rec Units:**		

Comments :

WHEAT SILAGE/CORN SILAGE

Limestone application is targeted to bring soil pH to 6.5.

- All of the recommended phosphorus can be applied prior to the small grain.

Patent Pending 1999

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CO-OP

SOIL ANALYSIS

Client :	Grower :	
White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	JOHNNY SPARKMAN	Report No: 09-055-0581 Cust No: 02149 Date Printed: 02/25/2009 Date Received : 02/24/2009 PO: Page : 1 of 3

Lab Number : 03119 **Field Id :** **Sample Id :** H 5

Test	Results
Soil pH	6.4
Buffer pH	7.76
Phosphorus (P)	94 LB/ACRE
Potassium (K)	108 LB/ACRE
Calcium (Ca)	2552 LB/ACRE
Magnesium (Mg)	196 LB/ACRE
Sulfur (S)	
Boron (B)	
Copper (Cu)	
Iron (Fe)	
Manganese (Mn)	
Zinc (Zn)	
Sodium (Na)	
Soluble Salts	
Organic Matter	4.1 % ENR 126
Nitrate Nitrogen	

SOIL TEST RATINGS

Low Medium

Calculated Cation Exchange Capacity

9.3

meq/100g

Calculated Cation Saturation

%K	1.5
%Ca	68.6
%Mg	8.8
%H	20.6

K : Mg Ratio

0.17

SOIL FERTILITY GUIDELINES

Crop : COOL SEASON GRASS HAY **Yield Goal :** 5 TONS **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
0 0	200	34	174	0						
Crop :							**Rec Units:**			

Comments :

COOL SEASON GRASS HAY

- On light soils with high grass hay yields, soil test annually to maintain soil pH and nutrient level.
- For grass hay or pasture needing high rates split the P and K application. Apply 1/2 in the spring and 1/2 in late summer.
- For cool season grass topdress with nitrogen: Feb 15 - March 15 60 to 100 lbs N/Acre. May 1-15 0 to 50 lbs N/Acre. Aug 1 - Sept 15 60 to 80 lbs N/Acre.

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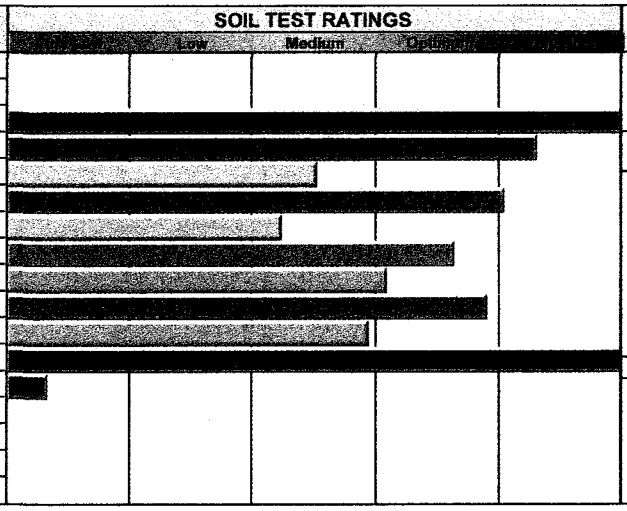
SOIL ANALYSIS

Client :	Grower :	
White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	JACOB SPARKMAN	Report No: 09-042-0912 Cust No: 02149 Date Printed: 02/17/2009 Date Received : 02/11/2009 PO: Page : 9 of 9

Lab Number : 19837 **Field Id :** **Sample Id :** 14

Test	Results
Soil pH	6.1
Buffer pH	7.73
Phosphorus (P)	614 LB/ACRE
Potassium (K)	488 LB/ACRE
Calcium (Ca)	3066 LB/ACRE
Magnesium (Mg)	512 LB/ACRE
Sulfur (S)	26 LB/ACRE
Boron (B)	2.6 LB/ACRE
Copper (Cu)	6.0 LB/ACRE
Iron (Fe)	384 LB/ACRE
Manganese (Mn)	274 LB/ACRE
Zinc (Zn)	44.0 LB/ACRE
Sodium (Na)	50 LB/ACRE
Soluble Salts	
Organic Matter	3.5 % ENR 114
Nitrate Nitrogen	



Calculated Cation Exchange Capacity: **12.7** meq/100g

Calculated Cation Saturation

%K	4.9
%Ca	60.4
%Mg	16.8
%H	17.0
%Na	0.9

K : Mg Ratio: 0.29

SOIL FERTILITY GUIDELINES

Crop : WHEAT SILAGE/CORN SILAGE **Yield Goal :** 10 Tons **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
1500 0.75	100	0	0	0	17	0	0	0	0	
Crop :							**Rec Units:**			

Comments :

WHEAT SILAGE/CORN SILAGE

RECOMMENDATIONS ARE INTENDED FOR A 8-10 TON WHEAT SILAGE YIELD AND A 20-25 TON CORN SILAGE YIELD.

FOR CORN SILAGE FOLLOWING WHEAT SILAGE, APPLY 150-0-0

Limestone application is targeted to bring soil pH to 6.5.

- All of the recommended phosphorus can be applied prior to the small grain.

Patent Pending 1999

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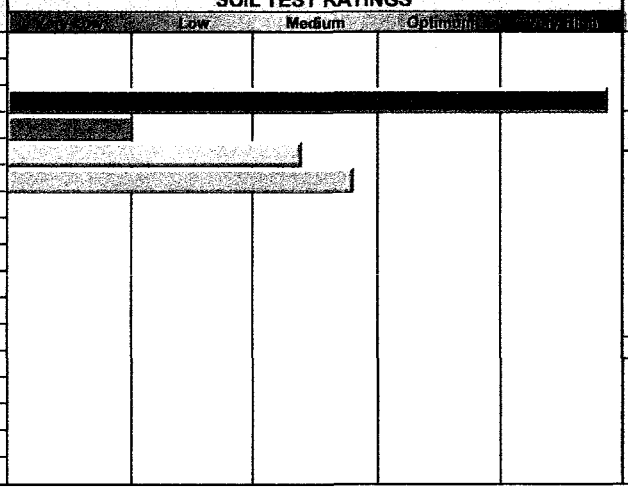
CO-OP

SOIL ANALYSIS

Client :	Grower :	
White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	JOHNNY SPARKMAN	Report No: 09-055-0581 Cust No: 02149 Date Printed: 02/25/2009 Date Received : 02/24/2009 PO: Page : 2 of 3

Lab Number : 03120 **Field Id :** **Sample Id :** CH 1

Test	Results
Soil pH	6.1
Buffer pH	7.66
Phosphorus (P)	194 LB/ACRE
Potassium (K)	128 LB/ACRE
Calcium (Ca)	2362 LB/ACRE
Magnesium (Mg)	330 LB/ACRE
Sulfur (S)	
Boron (B)	
Copper (Cu)	
Iron (Fe)	
Manganese (Mn)	
Zinc (Zn)	
Sodium (Na)	
Soluble Salts	
Organic Matter	5.4 % ENR 152
Nitrate Nitrogen	



Calculated Cation Exchange Capacity: **10.2** meq/100g

Calculated Cation Saturation

%K	1.6
%Ca	57.9
%Mg	13.5
%H	26.7

K : Mg Ratio: 0.12

SOIL FERTILITY GUIDELINES

Crop : COOL SEASON GRASS HAY **Yield Goal :** 5 TONS **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
1500 0.75	200	30	178	0						
Crop :							**Rec Units:**			

Comments :

COOL SEASON GRASS HAY

Limestone application is targeted to bring soil pH to 6.5.

- On light soils with high grass hay yields, soil test annually to maintain soil pH and nutrient level.
- For grass hay or pasture needing high rates split the P and K application. Apply 1/2 in the spring and 1/2 in late summer.
- For cool season grass topdress with nitrogen: Feb 15 - March 15 60 to 100 lbs N/Acre. May 1-15 0 to 50 lbs N/Acre. Aug 1 - Sept 15 60 to 80 lbs N/Acre.

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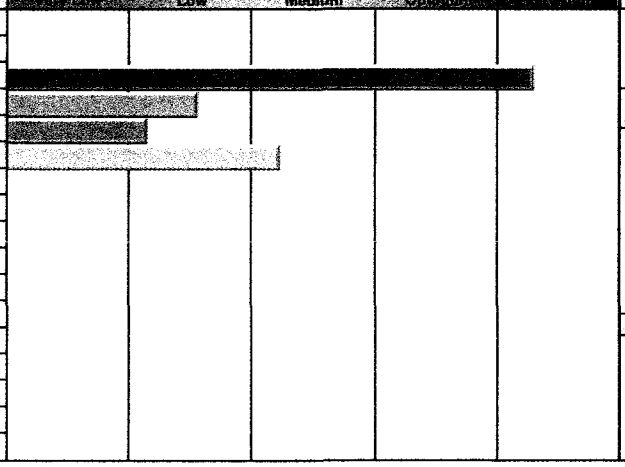
SOIL ANALYSIS

Client :	Grower :	
White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	JOHNNY SPARKMAN	Report No: 09-055-0581 Cust No: 02149 Date Printed: 02/25/2009 Date Received : 02/24/2009 PO: Page : 3 of 3

Lab Number : 03121 **Field Id :** **Sample Id :** SIMS 1

Test	Results	SOIL TEST RATINGS (Low / Medium / Optimum)
Soil pH	5.3	
Buffer pH	7.42	
Phosphorus (P)	134 LB/ACRE	
Potassium (K)	148 LB/ACRE	
Calcium (Ca)	990 LB/ACRE	
Magnesium (Mg)	150 LB/ACRE	
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	4.5 % ENR 134	
Nitrate Nitrogen		



Calculated Cation Exchange Capacity	
7.9 meq/100g	
Calculated Cation Saturation	
%K	2.4
%Ca	31.3
%Mg	7.9
%H	58.7
K : Mg Ratio	
0.30	

SOIL FERTILITY GUIDELINES

Crop : COOL SEASON GRASS HAY **Yield Goal :** 5 TONS **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
4500 2.25	200	30	151	0						

Crop : **Rec Units:**

Comments :

COOL SEASON GRASS HAY

Limestone application is targeted to bring soil pH to 6.5.

- On light soils with high grass hay yields, soil test annually to maintain soil pH and nutrient level.
- For grass hay or pasture needing high rates split the P and K application. Apply 1/2 in the spring and 1/2 in late summer.
- For cool season grass topdress with nitrogen: Feb 15 - March 15 60 to 100 lbs N/Acre. May 1-15 0 to 50 lbs N/Acre. Aug 1 - Sept 15 60 to 80 lbs N/Acre.

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SOIL ANALYSIS

Client:	Grower:	Report No: 09-042-0901
White Farmers Co-Op	JOHNNY SPARKMAN	Cust No: 02149
Mr. Mitchell Stephens		Date Printed: 02/17/2009
RT 4 271 Mayberry St.		Date Received: 02/11/2009
Sparta TN 38583-9804		PO:
		Page: 1 of 8

Lab Number: 19800 **Field Id:** **Sample Id:** H-1

Test	Results
Soil pH	6.1
Buffer pH	7.53
Phosphorus (P)	144 LB/ACRE
Potassium (K)	280 LB/ACRE
Calcium (Ca)	2008 LB/ACRE
Magnesium (Mg)	324 LB/ACRE
Sulfur (S)	22 LB/ACRE
Boron (B)	1.8 LB/ACRE
Copper (Cu)	3.6 LB/ACRE
Iron (Fe)	162 LB/ACRE
Manganese (Mn)	464 LB/ACRE
Zinc (Zn)	13.0 LB/ACRE
Sodium (Na)	116 LB/ACRE
Soluble Salts	
Organic Matter	2.4 % ENR 92
Nitrate Nitrogen	

SOIL TEST RATINGS

Low Medium Optimum

Calculated Cation Exchange Capacity	
10.7 meq/100g	
Calculated Cation Saturation	
%K	3.4
%Ca	46.9
%Mg	12.6
%H	35.1
%Na	2.4
K : Mg Ratio	
0.27	

SOIL FERTILITY GUIDELINES

Crop : WHEAT SILAGE/CORN SILAGE **Yield Goal :** 10 Tons **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
2500 1.25	100	0	80	0	19	0	0	0	0	
Crop :								**Rec Units:**		

Comments :

WHEAT SILAGE/CORN SILAGE

RECOMMENDATIONS ARE INTENDED FOR A 8-10 TON WHEAT SILAGE YIELD AND A 20-25 TON CORN SILAGE YIELD.

FOR CORN SILAGE FOLLOWING WHEAT SILAGE, APPLY 150-0-120

Limestone application is targeted to bring soil pH to 6.5.

- All of the recommended phosphorus can be applied prior to the small grain.

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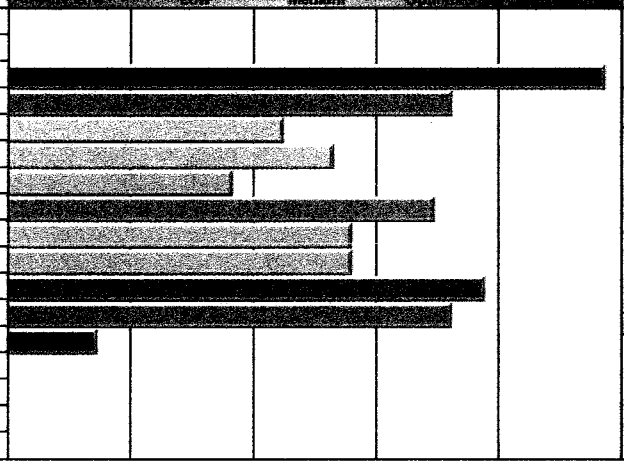
SOIL ANALYSIS

Client :	Grower :	
White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	JOHNNY SPARKMAN	Report No: 09-042-0901 Cust No: 02149 Date Printed: 02/17/2009 Date Received : 02/11/2009 PO: Page : 2 of 8

Lab Number : 19801 **Field Id :** **Sample Id :** H-2

Test	Results
Soil pH	6.9
Buffer pH	7.60
Phosphorus (P)	194 LB/ACRE
Potassium (K)	354 LB/ACRE
Calcium (Ca)	2534 LB/ACRE
Magnesium (Mg)	288 LB/ACRE
Sulfur (S)	20 LB/ACRE
Boron (B)	2.2 LB/ACRE
Copper (Cu)	4.8 LB/ACRE
Iron (Fe)	176 LB/ACRE
Manganese (Mn)	498 LB/ACRE
Zinc (Zn)	13.8 LB/ACRE
Sodium (Na)	108 LB/ACRE
Soluble Salts	
Organic Matter	2.7 % ENR 98
Nitrate Nitrogen	



Calculated Cation Exchange Capacity	
11.4 meq/100g	
Calculated Cation Saturation	
%K	4.0
%Ca	55.6
%Mg	10.5
%H	28.1
%Na	2.1
K : Mg Ratio	
0.38	

SOIL FERTILITY GUIDELINES

Crop : WHEAT SILAGE/CORN SILAGE **Yield Goal :** 10 Tons **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
0 0	100	0	60	0	20	0	0	0	0	
Crop :							**Rec Units:**			

Comments :

WHEAT SILAGE/CORN SILAGE

RECOMMENDATIONS ARE INTENDED FOR A 8-10 TON WHEAT SILAGE YIELD AND A 20-25 TON CORN SILAGE YIELD.

FOR CORN SILAGE FOLLOWING WHEAT SILAGE, APPLY 150-0-100

- All of the recommended phosphorus can be applied prior to the small grain.

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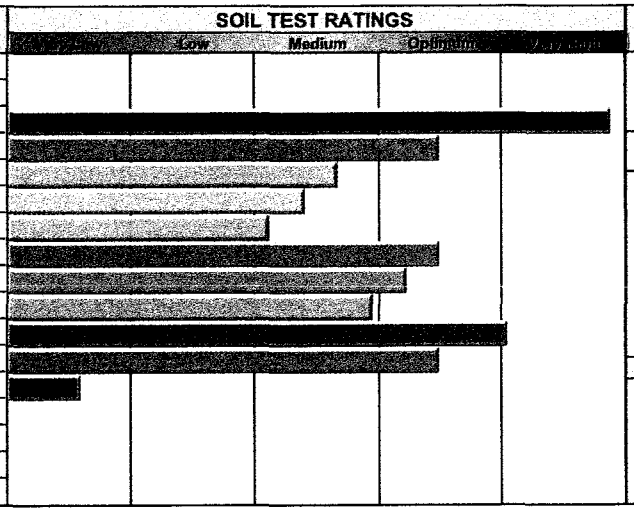
SOIL ANALYSIS

Client : White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	Grower : JOHNNY SPARKMAN	Report No: 09-042-0901 Cust No: 02149 Date Printed: 02/17/2009 Date Received : 02/11/2009 PO: Page : 3 of 8

Lab Number : 19803 **Field Id :** **Sample Id :** H-3

Test	Results
Soil pH	6.8
Buffer pH	7.68
Phosphorus (P)	196 LB/ACRE
Potassium (K)	338 LB/ACRE
Calcium (Ca)	2854 LB/ACRE
Magnesium (Mg)	226 LB/ACRE
Sulfur (S)	24 LB/ACRE
Boron (B)	2.2 LB/ACRE
Copper (Cu)	6.6 LB/ACRE
Iron (Fe)	188 LB/ACRE
Manganese (Mn)	506 LB/ACRE
Zinc (Zn)	11.6 LB/ACRE
Sodium (Na)	80 LB/ACRE
Soluble Salts	
Organic Matter	2.4 % ENR 92
Nitrate Nitrogen	



Calculated Cation Exchange Capacity

11.2 meq/100g

Calculated Cation Saturation

%K	3.9
%Ca	63.7
%Mg	8.4
%H	22.9
%Na	1.6

K : Mg Ratio

0.46

SOIL FERTILITY GUIDELINES

Crop : WHEAT SILAGE/CORN SILAGE **Yield Goal :** 10 Tons **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
0 0	100	0	60	0	18	0	0	0	0	

Crop : **Rec Units:**

Comments :

WHEAT SILAGE/CORN SILAGE

RECOMMENDATIONS ARE INTENDED FOR A 8-10 TON WHEAT SILAGE YIELD AND A 20-25 TON CORN SILAGE YIELD.

FOR CORN SILAGE FOLLOWING WHEAT SILAGE, APPLY 150-0-100

- All of the recommended phosphorus can be applied prior to the small grain.

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SOIL ANALYSIS

Client :	Grower :	
White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	JOHNNY SPARKMAN	Report No: 09-042-0901 Cust No: 02149 Date Printed: 02/17/2009 Date Received : 02/11/2009 PO: Page : 4 of 8

Lab Number : 19804 **Field Id :** **Sample Id :** H-4

Test	Results	SOIL TEST RATINGS (Low / Medium / Optimum)
Soil pH	6.0	
Buffer pH	7.59	
Phosphorus (P)	100 LB/ACRE	
Potassium (K)	176 LB/ACRE	
Calcium (Ca)	2348 LB/ACRE	
Magnesium (Mg)	190 LB/ACRE	
Sulfur (S)	22 LB/ACRE	
Boron (B)	1.6 LB/ACRE	
Copper (Cu)	2.8 LB/ACRE	
Iron (Fe)	140 LB/ACRE	
Manganese (Mn)	278 LB/ACRE	
Zinc (Zn)	6.6 LB/ACRE	
Sodium (Na)	80 LB/ACRE	
Soluble Salts		
Organic Matter	2.2 % ENR 88	
Nitrate Nitrogen		

Calculated Cation Exchange Capacity	
10.3 meq/100g	
Calculated Cation Saturation	
%K	2.2
%Ca	57.0
%Mg	7.7
%H	31.8
%Na	1.7
K : Mg Ratio	
0.29	

SOIL FERTILITY GUIDELINES

Crop : WHEAT SILAGE/CORN SILAGE **Yield Goal :** 10 Tons **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
2500 1.25	100	30	100	0	19	0.6	0	0	0	
Crop :							**Rec Units:**			

Comments :

WHEAT SILAGE/CORN SILAGE

RECOMMENDATIONS ARE INTENDED FOR A 8-10 TON WHEAT SILAGE YIELD AND A 20-25 TON CORN SILAGE YIELD.

FOR CORN SILAGE FOLLOWING WHEAT SILAGE, APPLY 150-30-140

Limestone application is targeted to bring soil pH to 6.5.

· All of the recommended phosphorus can be applied prior to the small grain.

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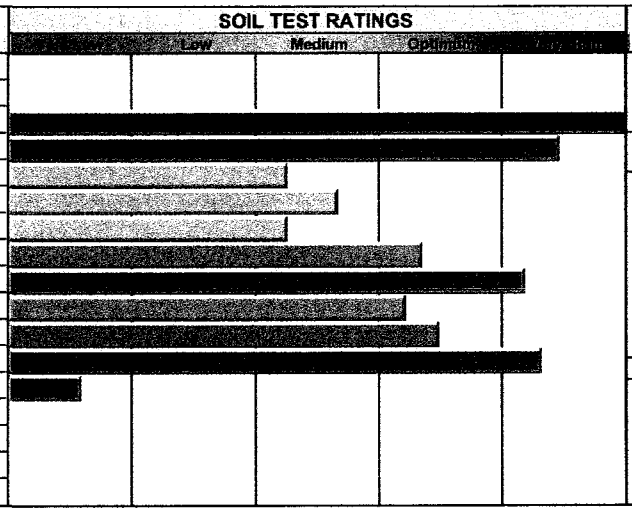
SOIL ANALYSIS

Client :	Grower :	
White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	JOHNNY SPARKMAN	Report No: 09-042-0901 Cust No: 02149 Date Printed: 02/17/2009 Date Received : 02/11/2009 PO: Page : 5 of 8

Lab Number : 19805 **Field Id :** **Sample Id :** DB-1

Test	Results
Soil pH	6.8
Buffer pH	7.66
Phosphorus (P)	376 LB/ACRE
Potassium (K)	552 LB/ACRE
Calcium (Ca)	2328 LB/ACRE
Magnesium (Mg)	298 LB/ACRE
Sulfur (S)	26 LB/ACRE
Boron (B)	2.0 LB/ACRE
Copper (Cu)	11.6 LB/ACRE
Iron (Fe)	236 LB/ACRE
Manganese (Mn)	402 LB/ACRE
Zinc (Zn)	23.6 LB/ACRE
Sodium (Na)	76 LB/ACRE
Soluble Salts	
Organic Matter	2.2 % ENR 88
Nitrate Nitrogen	



Calculated Cation Exchange Capacity

10.7 meq/100g

Calculated Cation Saturation

%K	6.6
%Ca	54.4
%Mg	11.6
%H	25.4
%Na	1.5

K : Mg Ratio

0.57

SOIL FERTILITY GUIDELINES

Crop : WHEAT SILAGE/CORN SILAGE **Yield Goal :** 10 Tons **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
0 0	100	0	0	0	17	0	0	0	0	
Crop :							**Rec Units:**			

Comments :

WHEAT SILAGE/CORN SILAGE

RECOMMENDATIONS ARE INTENDED FOR A 8-10 TON WHEAT SILAGE YIELD AND A 20-25 TON CORN SILAGE YIELD.

FOR CORN SILAGE FOLLOWING WHEAT SILAGE, APPLY 150-0-0

- All of the recommended phosphorus can be applied prior to the small grain.

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CO-OP

SOIL ANALYSIS

Client :	Grower :	
White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	JOHNNY SPARKMAN	Report No: 09-042-0901 Cust No: 02149 Date Printed: 02/17/2009 Date Received : 02/11/2009 PO: Page : 6 of 8

Lab Number : 19806 **Field Id :** **Sample Id :** CH-2

Test	Results	SOIL TEST RATINGS (Low / Medium / Optimum)
Soil pH	6.0	
Buffer pH	7.72	
Phosphorus (P)	654 LB/ACRE	
Potassium (K)	534 LB/ACRE	
Calcium (Ca)	2882 LB/ACRE	
Magnesium (Mg)	238 LB/ACRE	
Sulfur (S)	28 LB/ACRE	
Boron (B)	1.6 LB/ACRE	
Copper (Cu)	6.6 LB/ACRE	
Iron (Fe)	302 LB/ACRE	
Manganese (Mn)	204 LB/ACRE	
Zinc (Zn)	30.4 LB/ACRE	
Sodium (Na)	58 LB/ACRE	
Soluble Salts		
Organic Matter	2.8 % ENR 100	
Nitrate Nitrogen		

Calculated Cation Exchange Capacity	
11.2 meq/100g	
Calculated Cation Saturation	
%K	6.1
%Ca	64.3
%Mg	8.9
%H	20.0
%Na	1.1
K : Mg Ratio	
0.69	

SOIL FERTILITY GUIDELINES

Crop : CORN SILAGE **Yield Goal :** 25 TONS **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
1500 0.75	188	0	0	0	16	0.6	0	0	0	
Crop :							**Rec Units:**			

Comments :

CORN SILAGE

Limestone application is targeted to bring soil pH to 6.5.

· Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.

· For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P2O5/Acre.

· If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

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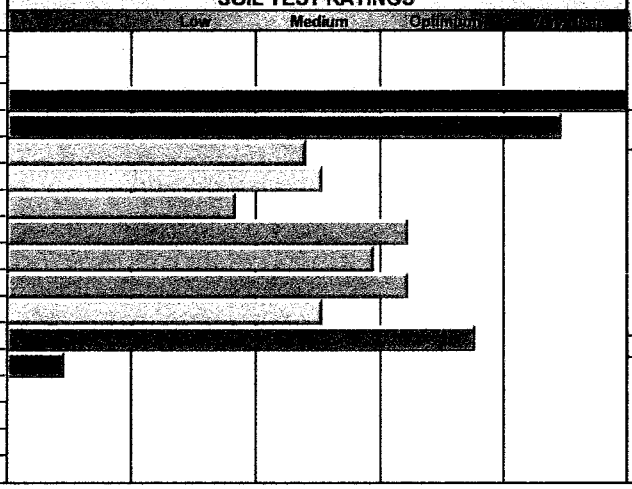
SOIL ANALYSIS

Client :	Grower :	
White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	JOHNNY SPARKMAN	Report No: 09-042-0901 Cust No: 02149 Date Printed: 02/17/2009 Date Received : 02/11/2009 PO: Page : 7 of 8

Lab Number : 19807 **Field Id :** **Sample Id :** CH-3

Test	Results
Soil pH	6.4
Buffer pH	7.69
Phosphorus (P)	436 LB/ACRE
Potassium (K)	446 LB/ACRE
Calcium (Ca)	2296 LB/ACRE
Magnesium (Mg)	218 LB/ACRE
Sulfur (S)	20 LB/ACRE
Boron (B)	1.6 LB/ACRE
Copper (Cu)	5.4 LB/ACRE
Iron (Fe)	246 LB/ACRE
Manganese (Mn)	160 LB/ACRE
Zinc (Zn)	16.4 LB/ACRE
Sodium (Na)	44 LB/ACRE
Soluble Salts	
Organic Matter	2.1 % ENR 86
Nitrate Nitrogen	



Calculated Cation Exchange Capacity	
9.8 meq/100g	
Calculated Cation Saturation	
%K	5.8
%Ca	58.6
%Mg	9.3
%H	25.3
%Na	1.0
K : Mg Ratio	
0.63	

SOIL FERTILITY GUIDELINES

Crop : CORN SILAGE **Yield Goal :** 25 TONS **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
0 0	188	0	0	0	20	0.6	0	0	0	
Crop :							**Rec Units:**			

Comments :

CORN SILAGE

· Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.

· For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P2O5/Acre.

· If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

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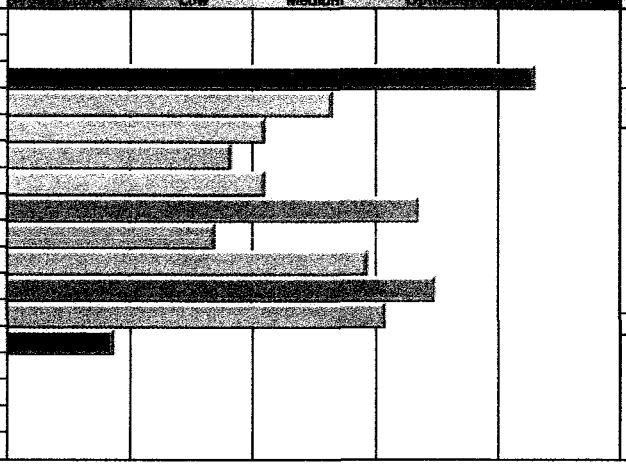
SOIL ANALYSIS

Client :	Grower :	
White Farmers Co-Op Mr. Mitchell Stephens RT 4 271 Mayberry St. Sparta TN 38583-9804	JOHNNY SPARKMAN	Report No: 09-042-0901 Cust No: 02149 Date Printed: 02/17/2009 Date Received : 02/11/2009 PO: Page : 8 of 8

Lab Number : 19808 **Field Id :** **Sample Id :** MT-1

Test	Results	SOIL TEST RATINGS (Low / Medium / Optimum)
Soil pH	5.7	
Buffer pH	7.66	
Phosphorus (P)	136 LB/ACRE	
Potassium (K)	228 LB/ACRE	
Calcium (Ca)	1492 LB/ACRE	
Magnesium (Mg)	106 LB/ACRE	
Sulfur (S)	24 LB/ACRE	
Boron (B)	1.8 LB/ACRE	
Copper (Cu)	1.4 LB/ACRE	
Iron (Fe)	194 LB/ACRE	
Manganese (Mn)	398 LB/ACRE	
Zinc (Zn)	6.4 LB/ACRE	
Sodium (Na)	74 LB/ACRE	
Soluble Salts		
Organic Matter	2.1 % ENR 86	
Nitrate Nitrogen		



Calculated Cation Exchange Capacity	
7.3 meq/100g	
Calculated Cation Saturation	
%K	4.0
%Ca	51.1
%Mg	6.1
%H	37.3
%Na	2.2
K : Mg Ratio	
0.66	

SOIL FERTILITY GUIDELINES

Crop : WHEAT SILAGE/CORN SILAGE **Yield Goal :** 10 Tons **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
2500 1.25	100	0	80	14	18	0	1.1	0	0	
Crop :							**Rec Units:**			

Comments :

WHEAT SILAGE/CORN SILAGE

RECOMMENDATIONS ARE INTENDED FOR A 8-10 TON WHEAT SILAGE YIELD AND A 20-25 TON CORN SILAGE YIELD.

FOR CORN SILAGE FOLLOWING WHEAT SILAGE, APPLY 150-0-130

Limestone application is targeted to bring soil pH to 6.5.

All of the recommended phosphorus can be applied prior to the small grain.

Section 9. Closure Plan

Sparkman Farms will remove all waste from the holding pond upon closure of this facility. Manure will be applied based on the current nutrient management plan upon that future date.

Outline for Closure Plan

Purpose
Provide a brief description to the owner(s)/operator(s), of where the plan is to be submitted, and the standards/criteria by which the plan will be prepared to meet, if, and when, the site is closed.

Location
Provide site map, direction to the site, and an indication of the watershed where the runoff flows.

Description of the Operation
Describe the general soils at the site(s), the acres available to receive manure, indicate soil test results, RUSLE, LI, setback/buffer requirements, etc.

Determine the total volume of manure to be removed, and obtain a current manure test results.

Closure Description
Describe in detail how to close the facility all manure that will be land applied as instructed that a revised Nutrient Management Plan be prepared.

Assessment and Documentation of Site (land where manure) will be applied

1. Obtain a current soil test on each field receiving manure.
2. Run the Phosphorus Index (PI) on each field receiving manure.
3. Identify and delineate sensitive areas.
4. Determine the extent to which cultural resources will be impacted.
5. Determine the existing level of conservation treatment on each field where manure will be applied.
6. Determine if additional conservation treatment is needed to meet criteria on each field where manure will be applied.
7. Run RUSLE on each field receiving letter.
8. Provide Leaching Index (LI) results (if applicable for each field receiving letter.

Allocations
Allocate manure according to NRCS criteria outlined in the NRCS Waste Utilization Standard, Code 633 and manage nutrients according to NRCS Nutrient Management Standard, Code 590, based upon updated manure, letter and soil tests, crop(s) where materials will be applied.

In the event that Sparkman Farms poultry and dairy production at this location ceases, the following will be done within 360 days:

- Any litter and manure currently in storage at the time of closure will be removed and spread on the farm or spread elsewhere according to my Nutrient Management Plan.
- All litter and manure in storages will be removed and spread on the farm or spread elsewhere according to my Nutrient Management Plan.
- All land application of litter and manure will be done at application rates calculated in the Nutrient Management Plan.
- The most current litter and manure analysis will be provided to anyone removing litter or manure from the farm.
- All dead animals will be disposed of in accordance with normal mortality management specified in the NMP.

Section 10. References

10.1. Publications

Crop Fertilizer Recommendations

"Lime and Fertilizer Recommendations for the Various Crops of Tennessee," BEES Info #100, Aug 2008
http://soilplantandpest.utk.edu/publications/soilfertilizerpubs.htm

"Lime and Fertilizer Recommendations for the Various Crops of Tennessee," BEES Info #100, Feb 2009
http://soilplantandpest.utk.edu/publications/soilfertilizerpubs.htm

Manure Application Setback Features/Distances

Nutrient Management Standard 590
http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc

TN DEQ Rule 1200-4-5-.14(17)(d)
http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf

Manure Nutrient Availability

"Manure Application Management," Tables 3 and 4, Tennessee Extension, PB1510, 2/94
http://wastemgmt.ag.utk.edu/ExtensionProjects/extension_publications.htm

Phosphorus Assessment

"Tennessee Phosphorus Index," Tennessee NRCS, Nov. 2001

Practice Standards

Tennessee NRCS Nutrient Management Standard (590), Jan. 2003
http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc

10.2. Software and Data Sources

MMP Version	MMP 0.2.9.0
MMP Plan File	TN_Sparkman.mmp 1/4/2010 8:28:12 PM
MMP Initialization File for Tennessee	6/4/2009
MMP Soils File for Tennessee	11/17/2009
Phosphorus Assessment Tool	2009.02.20
NRCS Conservation Plan(s)	n/a
RUSLE2 Library	Version: 1.32.3.0 Build: Dec 17 2007 Science: 20061020
RUSLE2 Database	Sparkman_2_RUSLE2mosesdb(1).gdb

10.3. Operation and Maintenance

General

Operation and maintenance of structural, non-structural, and land treatment measures requires effort and expenditures throughout the life of the practice(s) to maintain safe conditions and assure proper functioning. Operation includes the administration, management, and performance of non-maintenance actions needed to keep a completed practice safe and functioning as planned. Maintenance includes work to prevent deterioration of practices, repairing damage, or replacement of the practice(s) if one or more components fail. Listed below is the operation and maintenance plan for the structural, non-structural, and land treatment measures for this operation.

Concrete in the buildings should be checked for signs of cracking. If cracks are discovered they must be repaired immediately. Hairline cracks are expected and should pose no problem.

Waste Storage Facility - Manure Pack Storage
Waste Storage Facility –Roofed Storage Facilities
Trusses/roof supports shall be examined during/after snowfall and high wind events. Excessive snow loads may require removal. Damage from high winds may cause structural damage to the truss/roof supports. Roof materials shall be replaced as wear/leakage occurs. Metal roofing may require periodic painting. Gutters and Downspouts shall be maintained.

Heavy Use Area Protection
This practice is applied every year to protect area(s) from soil erosion by maintaining vegetative cover around houses, barns, roads, etc. These areas will have pests controlled as needed and will be fertilized at maintenance levels for optimum growth.

Limit access to the area during poor soil / weather situations to protect the cover.
Inspect the heavy use area after significant storms and repair damaged areas as soon as practical.

Manure will be removed from the heavy use area when the depth reaches 6-8 inches.

Fence
Fences and gates will be inspected often and repaired promptly. Electric twine can be used if it becomes necessary to subdivide the herd lots and to prevent the development of denuded areas.

Pond
Earthen slopes shall be checked for rills and gullies. Seeding shall be as necessary to maintain a grass cover. Weeds shall be controlled. The top of dam and outside slopes shall be mowed annually to discourage weed

growth, control woody vegetation, and allow closer examination of the earth embankment. Quickly remove woody vegetation that begins to grow on the embankment to prevent root establishment.

Earthen slopes shall be checked for soft or damp/wet areas that may be a sign of potential leakage. Burrowing animals in the slopes shall be controlled. Animals shall be immediately removed and the burrow holes filled.

Exclude animals and humans at all times.

Safety equipment (life buoys, ropes) and warning signs shall be maintained and checked periodically for wear.

Pasture Management

The pastures for the dry cows shall be managed for optimal growth of vegetation. The pastures are divided into sub-pastures as needed. The pastures will be managed in such a manner that will result in a well maintained stand of grass. Grazing of pastures should follow the recommendations provided by NRCS.

The actual time that cows are on pastures shall be adjusted based on production of forage and amount of nutrients applied. It is suggested that a ledger be kept to record the number of cows and time kept on individual pasture areas.

The pastures must be managed to prevent denuded areas from developing. This will be accomplished using gates and fencing to confine cows to specific areas. Portable feeders, portable shades, electric fence and portable water troughs are ways to help distribute the cows, and ultimately, evenly spreading the nutrients over the pastures. Electric twine can be used to subdivide the pastures and restrict grazing to the desired areas. This will help prevent the formation of denuded areas. A daily use record should be maintained in order to ensure uniform distribution of the nutrients. If a denuded area starts to develop, immediate corrective measures must be taken. Corrective actions may include, but not be limited to, temporarily fencing off the area, reseeding the area, and relocating the cause of the denuded area if applicable. Any buildup of manure (i.e., around gates and feeders) should be removed, analyzed for N, P and K then spread according to the nutrient management plan.

Supplemental fertilizer may be needed to maintain good vegetation conditions in the pastures. A soil test will determine which nutrients are lacking and the amount to apply. Only apply the amount of nutrients recommended by the soil test and in accordance with the nutrient management plan.

Animal Trails and Walkways

The walkways should be cleaned frequently to prevent a buildup of manure and reshaped as necessary to facilitate the removal of surface runoff. Fences and gates shall be used to control the access and movement of cattle using the animal trails and walkways and to prevent the creation of ruts in the trails and walkways. Cows will be moved non-stop between the barn and the pastures and not allowed to loaf or rest on the walkway.

The solids removed from any trails or walkways shall be analyzed for N, P_2O_5, and K_2O as they are removed and before they are spread.

Manure Spreader

Collecting a sample from the manure spreader is one of the preferred methods of collecting a solid manure sample because it represents what is being applied to the field. In addition, by the time manures have been scraped, collected, and loaded into a manure spreader, reasonable mixing has been performed. However, you should still collect at least 5 sub-samples following the collection procedures for the solids separator.

Nutrient Management

When applying waste or commercial fertilizer, calibrate application equipment to ensure that applied rates at recommended rates. It is important to avoid unnecessary exposure to chemical fertilizers and organic wastes. Protective clothing, respirator, gloves and footwear shall be worn when appropriate. When cleaning equipment after nutrient application, residual fertilizers or wastes shall be removed and saved in an appropriate manner.

- Keep records to document implementation activities. (Refer to PQC for guidance for the kind of records that should be kept).
- Calibrate manure application equipment according to procedures outlined in this section.
- Dispose/recycle nutrient containers according to state and local guidelines or regulations.

- Apply nutrients according to the procedures outlined in Section 6.
- Delay application of manure if precipitation capable of producing runoff is anticipated within 24 hours of the application event.
- Monitor soil test phosphorus levels and adjust nutrient application rates accordingly.
- Do not apply manure and wastewater on saturated, frozen and/or frequently flooded soils.
- Adhere to no-application setbacks as outlined on the conservation plan maps in Section 4.

Pesticide Management
The owner/operator is responsible for the proper application and storage of pesticides including calibration and maintenance of all equipment used in application of pesticides. No pesticides are stored on-site. Chemical fertilizers are purchased on an as needed basis. In addition, moveable mixing station is used and long time use of a specific mixing site is avoided therefore minimizing ground contamination. The following should be addressed, according to pesticide labels, in order to minimize negative impacts to the environment:

- Be trained and licensed to apply restricted pesticides.
- Dispose of leftover materials and containers according to label requirements.
- Read and follow all label directions and Material Safety Data Sheets that come with the pesticides.
- Avoid mixing pesticides and loading or rinsing sprayers next to wells, streams, sinkholes, drainage ditches, etc. Install anti-siphon devices on all hoses used to fill spray tanks.
- Avoid exposure to pesticides. Wear appropriate clothing, gloves, respirator, and footwear as specified on the product label. Wash affected area as soon as possible after possible exposure and prior to dinning or smoking.
- Check product label for reentry time. Follow restricted entry intervals.
- Triple –rinse empty containers is considered as a part of an integrated pest management system. Provide areas for emergency washing for those who might accidentally come in contact with chemicals.
- Use field scouting to determine when treatment threshold has been reached. Treatment thresholds for specific pests and crops are often available from the local Cooperative Extension Service office.
- Alternate pesticides of dissimilar mode of action or chemistry to reduce-target species resistance.
- Select methods of application that will result in the least potential for runoff and leaching.

Waste Utilization
Follow Nutrient Management Plan included in this document for the proper manure application rates, timing, and methods of application to provide nutrients to support crop production and to minimize the transport of nutrients to ground and surface water.

Commercial Fertilizer Application Equipment Calibration

The nitrogen applicator and the commercial broadcast spreaders will be set per the manufacturer's recommendations, then filled with a known amount and checked over a known acreage. Adjustments will be made to achieve the planned rates.

Animal Mortality Management
Inspect the facility to note any maintenance needs or indicators of operation problems.

Filter Strip
Establish a strip of perennial vegetation for trapping sediment and other pollutants from runoff or waste water.

Harvest the filter strip vegetation annually to encourage dense growth, maintain an upright growth habit and remove nutrients and other contaminants that are contained in the plant tissue.

Control undesired weed species, especially state-listed noxious weeds.

Inspect the filter strip after storm events and repair any gullies that have formed, remove unevenly deposited sediment accumulation that will disrupt sheet flow, and reseed disturbed areas.

Periodically re-grade the filter strip area when sediment deposition at the filter strip-field interface jeopardizes its function. Reestablish the filter strip vegetation in these re-graded areas, if needed.

Manure Spreader Calibration

There are several methods that can be used to calibrate the application rate of a manure spreader. It is desirable to repeat the calibration procedure 2 to 3 times and average the results to ensure a more accurate calibration. Calibration should take place annually or when manure is being applied from different sources or consistency.

Before calibrating a manure spreader, the spreader settings should be adjusted so that the spread is uniform. Most spreaders tend to deposit more manure near the spreader than at the edge of the spread pattern. Overlapping can make the overall application more uniform. Calibrating of application rates when overlapping, requires measuring the width of two spreads and dividing by two to get the effective spread width.

To calibrate the manure spreader use either of the following procedures.

Spreader Calibration - Method 1

Equipment: plastic sheet 6 x 6ft or 10 x 10ft, scale, bucket

1. Weigh sheet with bucket on the scale

2. Lay sheet in field in the path of manure spreader positioning it so the tractor will be at spreading speed before it reaches the sheet.

3. After spreading weigh sheet and manure in the bucket. Subtract weight of sheet plus bucket

4. Tons manure/acre = lb manure x 2 1.8, sheet size, sq ft

Spreader Calibration - Method 2

Equipment: yard stick, rope

1. Determine manure spreader capacity

2. Tie rope around tractor tire to determine distance traveled in one revolution

3. Spread manure load, counting wheel revolutions to determine the distance traveled

4. Measure width spreader is covering with manure, multiply by distance traveled